ORDER NO. VMD0202007C8

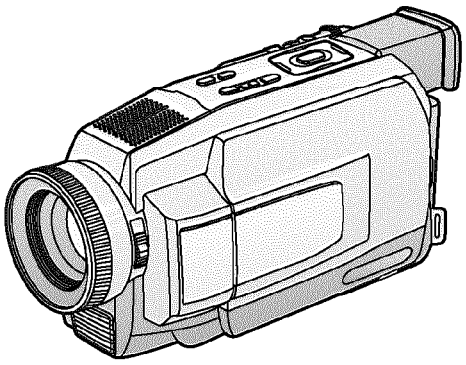
Service Manual

Digital Video Camcorder

NV-DS29EG

NV-DS29EGM / NV-DS29B / NV-DS29EGE / NV-DS30EG / NV-DS30EGM / NV-DS30B / NV-DS30EGE / NV-DS30EN / NV-DS30ENT / NV-DS30ENC / NV -DS30A / NV-DS50EN / NV-DS50ENT / NV-DS50A

VOL.1



SPECIFICATIONS

MC-Service

ITEM	SPECIFICATION	1	2	3	4
POWER	Source: Battery Pack; 7.2 V DC AC Adaptor; 7.9 V DC	○	○	○	○
	Consumption: During Camera Recording Using The LCD Monitor; 4.3 W	○	○	–	–
	4.5 W	–	–	○	–
	4.9 W	–	–	–	○
	During Camera Recording Using The Viewfinder; 2.7 W	○	○	–	–
	2.9 W	–	–	○	–
	3.3 W	–	–	–	○
RECORDING FORMAT	Digital Video SD Format	○	○	○	○
TAPE FORMAT	Mini DV Cassette Tape (Tape width 6.35 mm)	○	○	○	○
TAPE SPEED	SP mode : 18.83 mm/s LP mode : 12.57 mm/s Recording/Playback Time: SP mode : 80 min. with DVM80 LP mode : 120min. with DVM80	○	○	○	○
CAMERA	PICK-UP ELEMENT: CCD (Charge Coupled Device)	○	○	○	○
	STANDARD ILLUMINATION: 1,400 lx	○	○	○	○
	MINIMUM REQUIRED ILLUMINATION: 1 lx (Digital Gain-up Mode)	○	○	○	○
	LENS: 10 : 1 Power Zoom, Auto Iris, F1.8, Macro (Full Range AF) Focal Length; 3.6-36 mm Filter Diameter; 43.0 mm	○	○	○	○
	IMAGE SENSOR: 1/4-inch CCD Image Sensor	○	○	○	○
	VIEWFINDER: 0.21-inch Electronic Viewfinder 2.5-inch LCD Monitor	○	○	○	○
VIDEO	RECORDING FORMAT: Digital Component	○	○	○	○

ITEM	SPECIFICATION	1	2	3	4
VIDEO	TELEVISION SYSTEM: CCIR: 625 lines, 50 fields PAL colour signal	○	○	○	○
	VIDEO OUTPUT LEVEL: 1.0 Vp-p, 75 ohm S-VIDEO OUTPUT LEVEL: Y: 1.0 Vp-p, 75 ohm C: 0.3 Vp-p, 75 ohm	○	○	○	○
AUDIO	RECORDING SYSTEM: PCM Digital Recording; 16 bit (48 kHz/2ch) 12 bit (32 kHz/4ch)	○	○	○	○
	OUTPUT LEVEL: 316 mV, 600 ohm	○	○	○	○
	MIC INPUT: Mic sensitivity -50 dB (Stereo mini jack)	○	○	○	○
DIGITAL STILL PICTURE	Digital Still Picture Output, Control Signal Input/Output (Transfer rate: max. 115 kbps)	○	○	○	–
DIGITAL INTERFACE	DV Output Terminal (IEEE1394, 4-pin)	○	–	–	–
	DV Input/Output Terminal (IEEE1394, 4-pin)	–	○	○	○
USB	Card reader/writer function, USB 1.1 compliant (max. 12 Mbps)	–	–	–	○
CARD MEMORY FUNCTION	RECORDING MEDIA: MultiMediaCard, SD Memory Card IMAGE COMPRESSION: JPEG	–	–	–	○
MICROPHONE	Stereo	○	○	○	○
SPEAKER	1 round speaker ∅ 20 mm	○	○	○	○
OPERATING TEMPERTURE	0 °C~40 °C	○	○	○	○
OPERATING HUMIDITY	10 %~80 %	○	○	○	○
Weight	570 g (without Battery and DV cassette)	○	○	○	–
	580 g (without Battery and DV cassette)	–	–	–	○
Dimension	74 mm x 89 mm x 188 mm (W x H x D)	○	○	○	○

1. NV-DS29EG/ NV-DS29EGM/ NV-DS29B/ NV-DS29EGE
2. NV-DS30EG/ NV-DS30EGM/ NV-DS30B/ NV-DS30EGE
3. NV-DS30EN/ NV-DS30ENT/ NV-DS30ENC/ NV-DS30A
4. NV-DS50EN/ NV-DS50ENT/ NV-DS50A

Weight and dimensions shown are approximate.
Designs and specifications are subject to change without notice.

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⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public.
It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.
Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

Panasonic

1. SAFETY PRECAUTIONS

GENERAL GUIDELINES

1. IMPORTANT SAFETY NOTICE

There are special components used in this equipment which are important for safety. These parts are marked by ⚠ in the Schematic Diagrams, Circuit Board Layout, Exploded Views and Replacement Parts List. It is essential that these critical parts should be replaced with manufacturer's specified parts to prevent X-RADIATION, shock, fire, or other hazards. Do not modify the original design without permission of manufacturer.

2. An Isolation Transformer should always be used during the servicing of AC Adaptor whose chassis is not isolated from the AC power line. Use a transformer of adequate power rating as this protects the

technician from accidents resulting in personal injury from electrical shocks. It will also protect AC Adaptor from being damaged by accidental shorting that may occur during servicing.

3. When servicing, observe the original lead dress. If a short circuit is found, replace all parts which have been overheated or damaged by the short circuit.
4. After servicing, see to it that all the protective devices such as insulation barriers, insulation papers shields are properly installed.
5. After servicing, make the following leakage current checks to prevent the customer from being exposed to shock hazards.

LEAKAGE CURRENT COLD CHECK

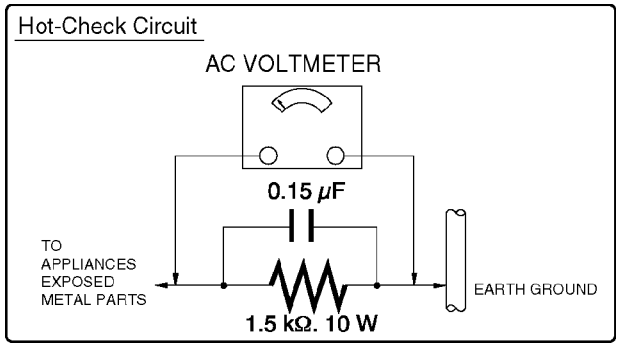
1. Unplug the AC cord and connect a jumper between the two prongs on the plug.
2. Measure the resistance value, with an ohmmeter, between the jumpered AC plug and each exposed metallic cabinet part on the equipment such as screwheads, connectors, control shafts, etc. When the exposed metallic part has a return path to the chassis, the reading should be between 1 M Ω and 5.2 M Ω . When the exposed metal does not have a return path to the chassis, the reading must be infinity.

LEAKAGE CURRENT HOT CHECK
(See Figure 1.)

1. Plug the AC cord directly into the AC outlet. Do not use an isolation transformer for this check.
2. Connect a 1.5 k Ω , 10 W resistor, in parallel with a 0.15 μ F capacitor, between each exposed metallic part on the set and a good earth ground, as shown in Figure 1.
3. Use an AC voltmeter, with 1 k Ω /V or more sensitivity, to measure the potential across the resistor.
4. Check each exposed metallic part, and measure the voltage at each point.
5. Reverse the AC plug in the AC outlet and repeat each of the above measurements.
6. The potential at any point should not exceed 0.75 V RMS. A leakage current tester (Simpson Model 229 or equivalent) may be used to make the hot checks, leakage current must not exceed 1/2 mA. In case a measurement is outside of the limits specified, there is a possibility of

a shock hazard, and the equipment should be repaired and rechecked before it is returned to the customer.

Figure. 1



2. PREVENTION OF ELECTRO STATIC DISCHARGE (ESD) TO ELECTROSTATICALLY SENSITIVE (ES) DEVICES

Some semiconductor (solid state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatically Sensitive (ES) Devices. Examples of typical ES devices are integrated circuits and some field-effect transistors and semiconductor "chip" components. The following techniques should be used to help reduce the incidence of component damage caused by electro static discharge (ESD).

1. **Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any ESD on your body by touching a known earth ground. Alternatively, obtain and wear a commercially available discharging ESD wrist strap, which should be removed for potential shock reasons prior to applying power to the unit under test.**
2. **After removing an electrical assembly equipped with ES devices, place the assembly on a conductive surface such as aluminum foil, to prevent electrostatic charge buildup or exposure of the assembly.**
3. **Use only a grounded-tip soldering iron to solder or unsolder ES devices.**
4. **Use only an antistatic solder removal device. Some solder removal devices not classified as "antistatic (ESD protected)" can generate electrical charge sufficient to damage ES devices.**
5. **Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ES devices.**
6. **Do not remove a replacement ES device from its protective package until immediately before you are ready to install it. (Most replacement**

ES devices are packaged with leads electrically shorted together by conductive foam, aluminum foil or comparable conductive material).

7. **Immediately before removing the protective material from the leads of a replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed.**
   CAUTION :
   Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.
8. **Minimize bodily motions when handling unpackaged replacement ES devices. (Otherwise harmless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity (ESD) sufficient to damage an ES device).**

3. INTRODUCTION

3.1. INTORODUCTION

This service manual contains technical information which will allow service personnel's to understand and service this model. Please place orders using the parts list and not the drawing reference unmbers. If the circuit is changed or modified, this information will be followed by supplement service manual to be filed with orginal service manual.

Note 1:

These movie cameras use AC Adaptor is DE-855AB This AC Adaptor is supplied as unit.
(See Parts List of this Service)

Note 2:

1. **This service manual does not contain the following information, because of the impossibility of servicing at component level.**
   A. Schematic Diagram, Block Diagram and Main C.B.A.
   B. Parts List for individual parts of Main C.B.A.
2. **The following category is/are recycle module part. Please send it/them to Central Repair Center.**
   ***Main C.B.A. (LSEP8165P1/Q1/R1/S1)**

When a part replacements is required for repairing each Main C.B.A., replace the assembly parts.
The following circuits are contained in Main Circuit.

3.2. CAUTION FOR AC CORD / (VJA0940 TYPE)

3.2.1. INFORMATION FOR YOUR SAFETY

IMPORTANT

Your attention is drawn to the fact that recording of pre-recorded tapes or discs or other published or broadcast material may infringe copyright laws.

WARNING

To reduce the risk of fire or shock hazard, do not expose this equipment to rain or moisture.
CAUTION
To reduce the risk of fire or shock hazard and annoying interference, use the recommended accessories only.
FOR YOUR SAFETY
DO NOT REMOVE THE OUTER COVE
To prevent electric shock, do not remove the cover. No user serviceable parts inside. Refer servicing to qualified service personnel.

3.3. CAUTION FOR AC MAINS LEAD

For your safety, please read the following text carefully.
This appliance is supplied with a moulded three-pin mains plug for your safety and convenience.
A 5-ampere fuse is fitted in this plug.
Should the fuse need to be replaced please ensure that the replacement fuse has a rating of 5 amperes and it is approved by ASTA or BSI to BS1362.
Check for the ASRA mark or the BSI mark on the body of the fuse.

ASTA mark	BSI mark

If the plug contains a removable fuse cover you must ensure that it is refitted when the fuse is replaced.
If you lose the fuse cover, the plug must not be used until a replacement cover is obtained.
A replacement fuse cover can be purchased from your local Panasonic Dealer.
If the fitted moulded plug is unsuitable for the socket outlet in your home then the fuse should be removed and the plug cut off and disposed of safety.
There is a danger of severe electrical shock if the cut off plug is inserted into any 13-ampere socket.
If a new plug is to be fitted please observe the wiring code as shown below.
If in any doubt, please consult a qualified electrician.

3.3.1. Important

The wires in this mains lead are coloured in accordance with the following code:

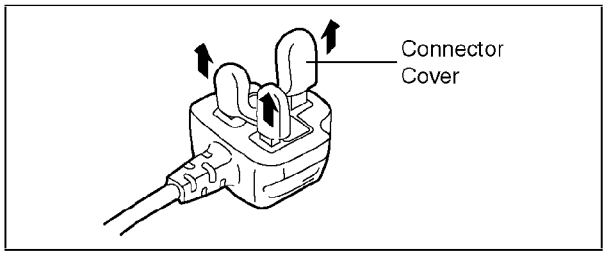
Blue	Neutral
Brown	Live

As the colours of the wires in the mains lead of this appliance may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:
The wire which is coloured BLUE must be connected to the terminal in the plug which is marked with the letter N or coloured BLACK.
The wire which is coloured BROWN must be connected to the terminal in the plug which is marked with the letter L or coloured RED.
Under no circumstances should either of these wires be connected to the earth terminal of the three pin plug, marked with the letter E or the Earth Symbol.

Earth Symbol	

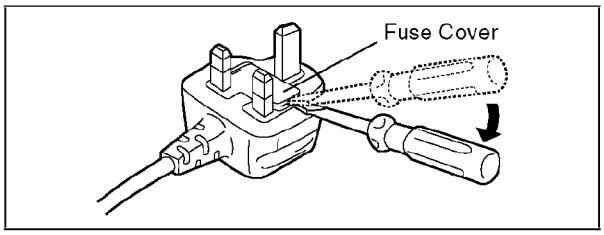
3.3.2. Before use

remove the Connector Cover as follows.

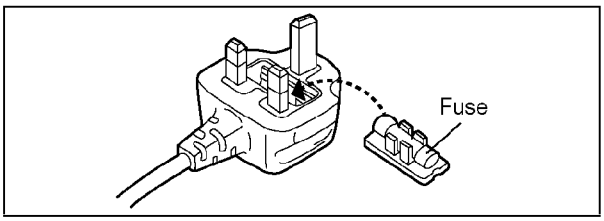


3.3.3. How to replace the Fuse

1. Remove the Fuse Cover with a screwdriver.



2. Replace the fuse and attach the Fuse cover.



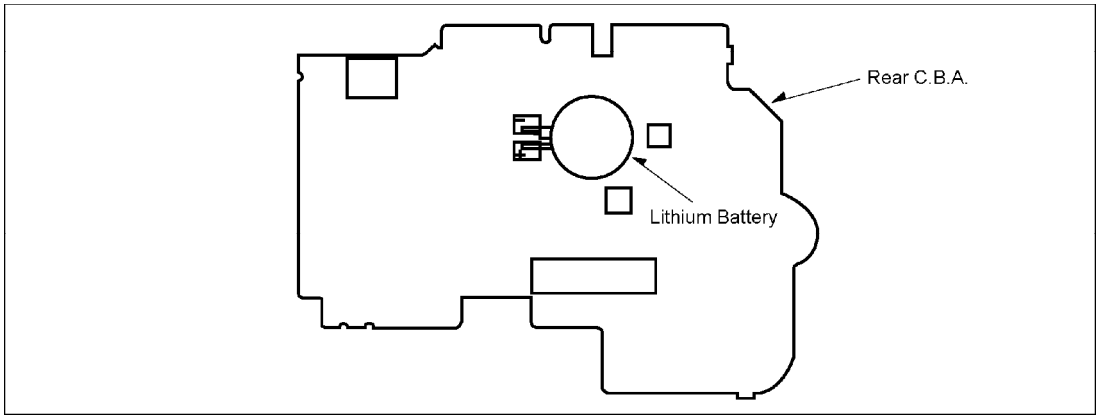
4. OPERATION GUIDE

5. HOW TO REPLACE THE LITHIUM BATTERY (PROCEDURE)

1. Remove the Rear C.B.A.. (Refer to Disassembly Procedures.)

2. Unsolder the Lithium Battery "LSSB0004" and then replace the new one. (See Fig. B1 .)

Fig. B1



Note:
The lithium battery is a critical component. (Type No.: LSSB0004.)
It must never be subjected to excessive heat or discharge.
It must therefore only be fitted in equipment designed specifically for its use.
Replacement batteries must be of the same type and manufacture.
They must be fitted in the same manner and location as the original battery, with the correct polarity contacts observed.
Do not attempt to re-charge the old battery or re-use it for any other purpose.

It should be disposed of in waste products destined for burial rather than incineration.

CAUTION
Danger of explosion if battery is incorrectly replaced.
Replace only with the same or equivalent type recommended by the equipment manufacturer.
Discard used batteries according to manufacturer's instructions.

PRECAUTION
Le fait de remplacer incorrectement la pile peut présenter des risques d'explosion.
Remplacer la pile uniquement par une pile identique ou de type équivalent recommandée par le fabricant. Se débarrasser des piles usagées conformément aux instructions du fabricant.

VORSICHT
Bei einer falsch eingesetzten Batterie besteht Explosionsgefahr. Nur mit einer vom Hersteller empfohlenen Batterie vom gleichen Typ ersetzen.
Verbrauchte Batterien beim Fachhändler oder einer Sammelstelle für Sonderstoffe abliefern.

VARNING
Explosionsfara vid felaktigt batteribyte.
Använd samma batterityp eller en ekvivalent typ som rekommenderas av apparattillverkaren.
Kassera använt batteri enligt fabrikantens instruktion.

ADVARSEL!
Lithiumbatteri-Eksplosionsfare ved fejlagtig håndtering.
Udskiftning má kun ske med batteri af samme fabrikat og type.
Levér det brugte batteri tilbage til leverandøren.

VAROITUS
Paristo voi räjähtää, jos se on virheellisesti asennettu.
Vaihda paristo ainoastaan laitevalmistajan suosittelemaan tyyppiin.
Hävitä käytetty paristo valmistajan ohjeiden mukaisesti.

6. SERVICE NOTES (PLEASE READ)

6.1. SERVICE NOTES

6.1.1. EXTENSION CABLES FOR SERVICE POSITION

Using the following Extension Cables, place the unit as shown for check and service.
Extension Cables (No.5 ~ No.8) are used for improving serviceability. (They are not necessarily used.)

NO.	PART NUMBER	PART NAME	CONNECTION
①	LSUA0030	11Pin Extension Cable	FP6 on Main C.B.A. ~ SD Holder F.P.C. of Side Case L Unit
②	LSUA0020	20Pin Extension Cable	FP9 on Main C.B.A. ~ Zoom Switch F.P.C. of Side Case L Unit
③	VFKW0124A	14Pin Extension Cable	FP301 on Main C.B.A. ~ CCD F.P.C. on Lens Unit
④	VUVS0012	22Pin Extension Cable	FP701 on Main C.B.A. ~ Lens F.P.C. on Lens Unit
⑤	LSUA0017	18Pin Extension Cable	FP4 on Main C.B.A. ~ Capstan F.P.C. on Mechanism Chassis Ass'y
⑥	LSUA0016	10Pin Extension Cable	FP3 on Main C.B.A. ~ Cylinder F.P.C. on Mechanism Chassis Ass'y
⑦	VUVS0007	12Pin Extension Cable	FP5 on Main C.B.A. ~ Head Amp F.P.C. on Mechanism Chassis Ass'y
⑧	VUVS0015	28Pin Extension Cable	FP2 on Main C.B.A. ~ Mechanism F.P.C. on Mechanism Chassis Ass'y

Note :

1. The LCD open/close SW. is for changing between LCD Display or EVF Display. When turning on LCD Display, place some paper or tape, etc. on LCD open/close SW. so that this SW. stays ON.

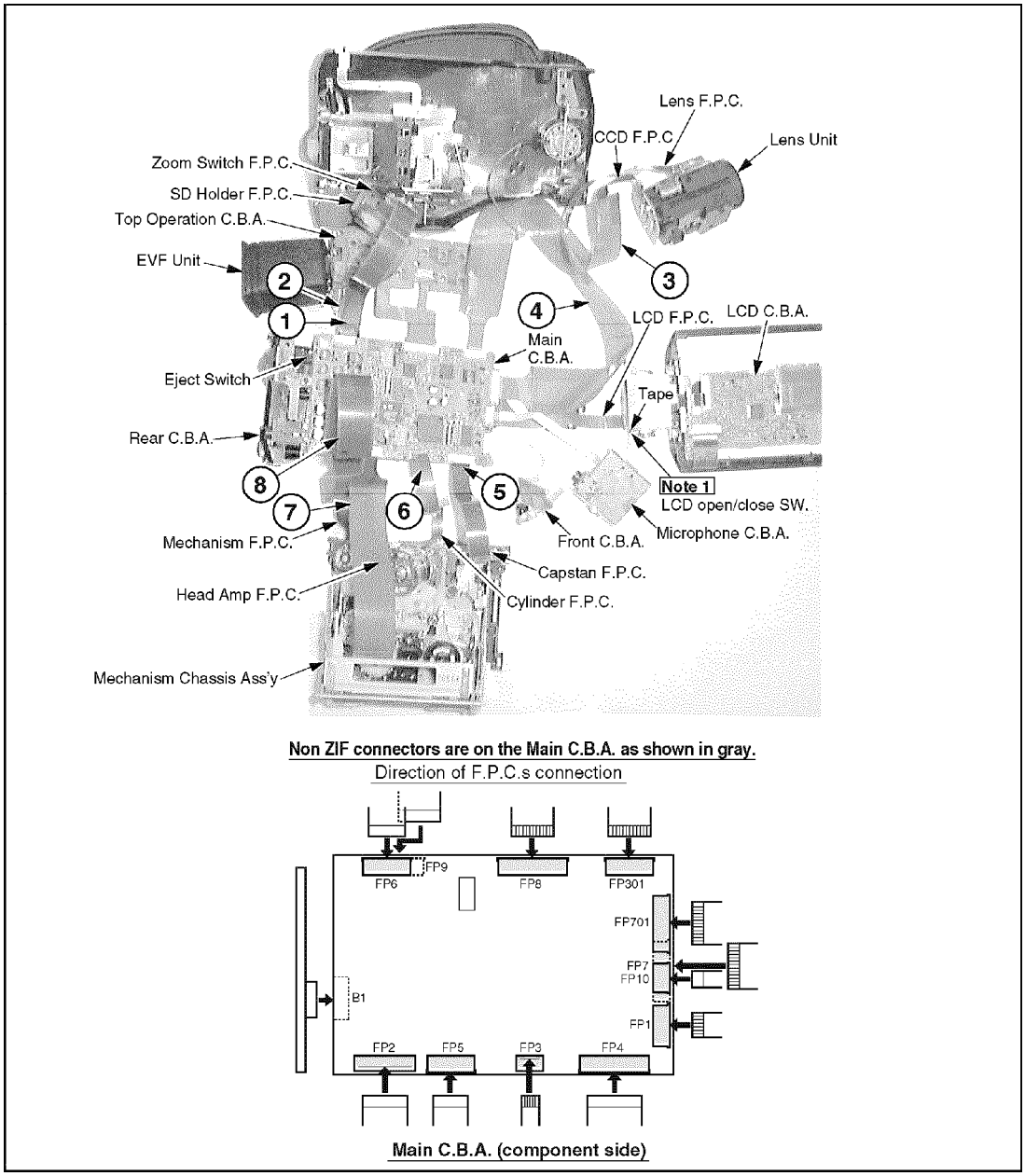
2. Connect the F.P.C.s to the connectors, verifying the direction of F.P.C.

as shown.

3. Use a grounded ESD wrist strap while disassembling the Lens portion.

4. Use extreme care when unplugging or plugging in connectors.

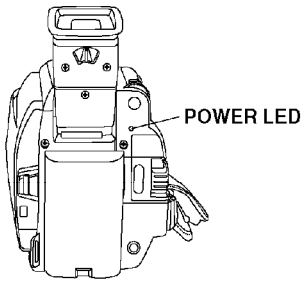
Fig. 1

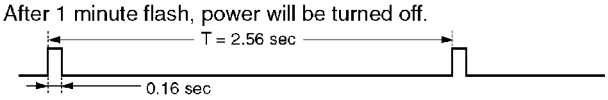
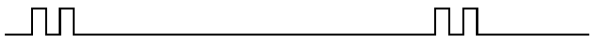
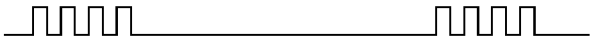
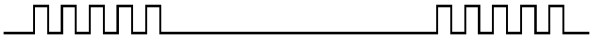


6.1.2. SIMPLIFIED FAULT FINDING DATA (SELF-DIAGNOSTIC SYSTEM)

When following conditions occur, the Power LED will flash according to the condition.

Fig. 2-1



CONDITION	POWER LED FLASHING TIMING & POWER OFF TIMING
T-Reel Lock	After 1 minute flash, power will be turned off. 
S-Reel Lock	After 1 minute flash, power will be turned off. 
Unloading Lock	After 1 minute flash, power will be turned off.
Loading Lock	After 1 minute flash, power will be turned off. 
Cylinder Lock	After 1 minute flash, power will be turned off. 
Focus Motor Lock	Power LED flashes at 1 Hz timing.
Zoom Motor Lock	Power LED flashes at 1 Hz timing.
Dew Detection	After 18 seconds flash at 1 Hz timing, power will be turned off.

(For model with SD/MMC Slot)

If any of the following numbers appear on-screen, the palmcorder may need service. Do not remove the battery (if attached) and write down the displayed number.

Fig. 2-2

Error No.	Error Description
U11	Card Error
U12	Card Error
U13	Card Error
U14	Card/Camcorder Dialogue Error
U15	Card Access Error
U16	Card Access Error
U30	Error other than above

Note:

While battery remains, the Error No. will be displayed again when the

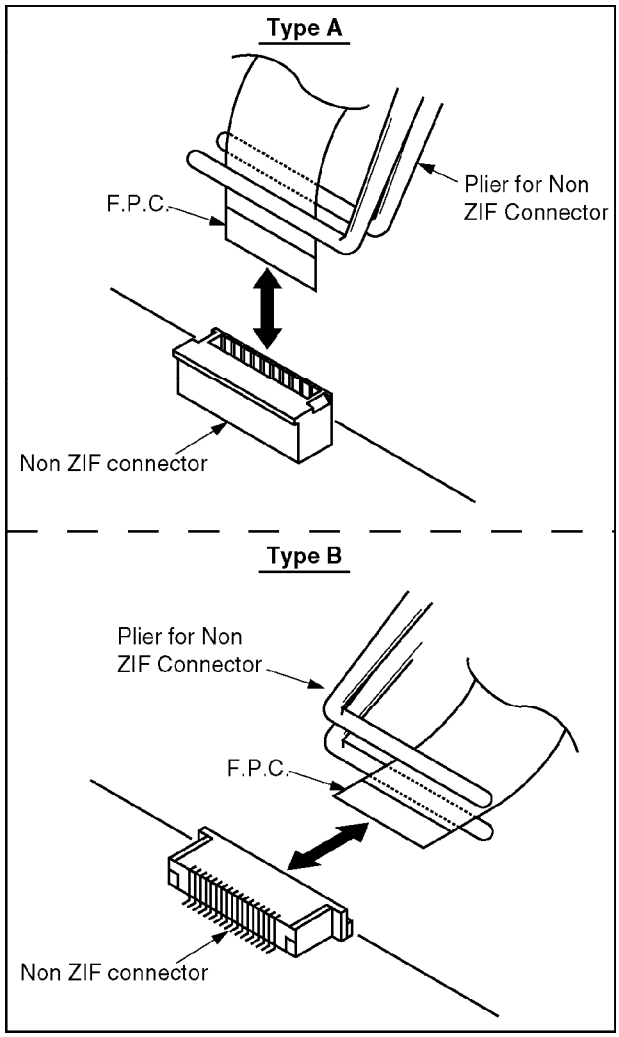
power is switched off and on again. (Once the Battery is removed or dead, Error No. will not remain in the memory.)

6.1.3. REMOVAL/INSTALLATION OF F.P.C. FROM NON ZIF (Zero Insertion Force) CONNECTOR

Removal/Installation of F.P.C. from the Non ZIF (Zero Insertion Force) connector:

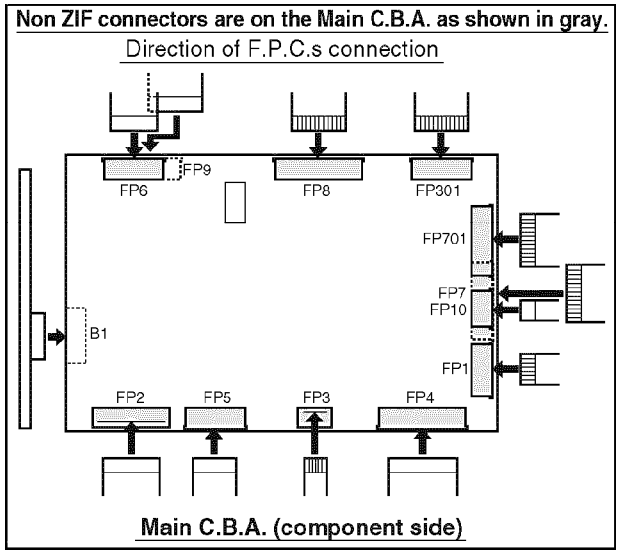
1. **The Non ZIF connectors and the ZIF connectors are used on the unit. And there are 2 types (Type A, Type B) of Non ZIF connectors.**
2. **To remove the F.P.C. from the Non ZIF connector, use the Plier for Non ZIF Connector (LSVQ0028) to pull out the F.P.C. as shown. The same Plier for Non ZIF Connector (LSVQ0028) should also be used to install the F.P.C. to the Non ZIF Connector.**

Fig. 3-1



3. **Connect the F.P.C.s to the Non ZIF connectors, verifying the direction of F.P.C as shown.**

Fig. 3-2



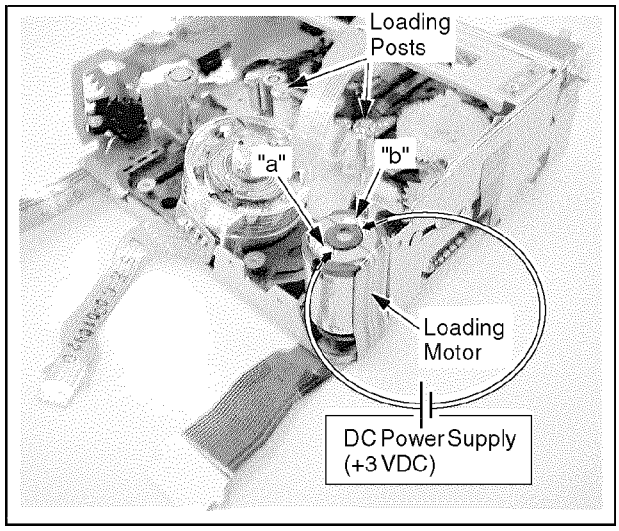
6.1.4. METHOD FOR LOADING/UNLOADING OF MECHANISM

CAUTION:

If loading does not start after DC Power Supply is applied, DO NOT continue to applying DC Power Supply.

Apply +3 VDC Power Supply to the Loading Motor terminals.
Loading:
DC (-) to Portion "a," DC (+) to Portion "b"
Unloading:
DC (+) to Portion "a," DC (-) to Portion "b"

Fig. 4



6.1.5. METHOD FOR EJECTING WITH POWER OFF

CAUTION:

Make sure that a cassette tape is not in when this method is used, or a cassette tape will be damaged. When a cassette tape is jammed, DO NOT eject manually. Refer to "HOW TO REMOVE A JAMMED TAPE."

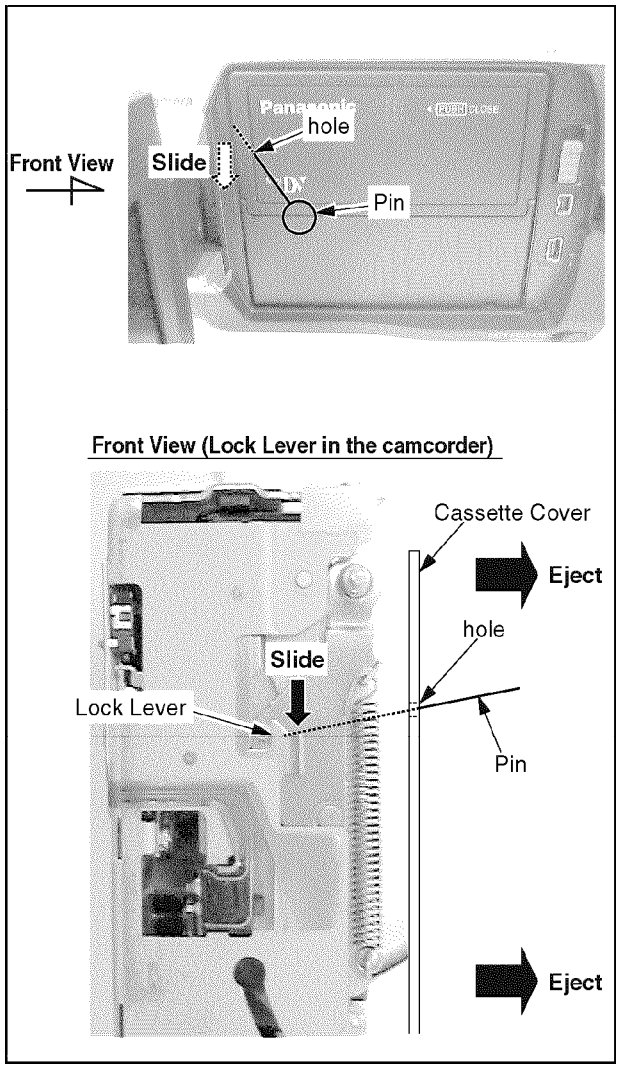
1. Insert the Pin or Straightened Paper Clip into the hole on the Cassette

Cover.

2. Slide the Lock Lever of Mechanism Chassis Ass'y.

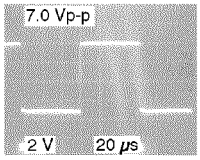
3. The Cassette Cover will open. (Eject)

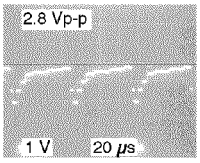
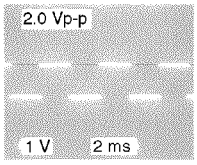
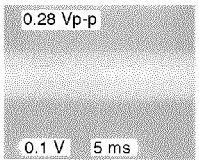
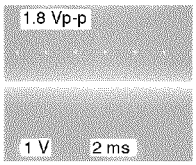
Fig. 5

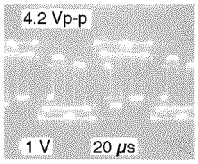
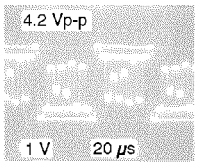
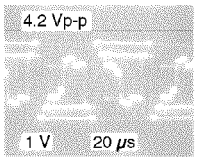
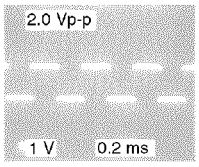
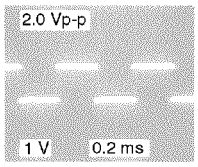


6.1.6. SIGNAL DESCRIPTION ON MEASURING BOARD FOR ELECTRICAL ADJUSTMENT (VFK1308E)

A signal check can be performed using the Interface Board.

Signal Name (on board)	Description	Waveforms
CAM_RESET	Not used	----------
E2DATA	Not used	----------
CAM_TEST	Not used	----------
E2CLK	Not used	----------
EVR3V	Not used	----------
VD	Not used	----------
SBO	Not used	----------
SBI	Not used	----------
CLK	Not used	----------
E2CS	Not used	----------
MREF/VREF-T	Not used	----------
AFST	Not used	----------
UARTI	To monitor RS-232C received data	----------
UARTO	To monitor RS-232C transmitted data	----------
VTR_RESET	Power microcontroller reset: low	----------
VTR_TEST	Not used	----------
BST_TEST	Not used	----------
TCK	Not used	----------
TMS	Not used	----------
TDO	Not used	----------
TDI	Not used	----------
MIC_CLK	MIC serial clock output from camcorder to PC	----------
MIC_DT	MIC serial data output from camcorder to PC	----------
MON_PLL	Not used	----------
MON_VCOM	To monitor V-COM signal at Pin 10 of FP8002 on LCD C.B.A.	 Camera Mode

Signal Name (on board)	Description	Waveforms
F_VSS	Not used	----------
F_SDA	Not used	----------
F_SCLK	Not used	----------
F_MODE	Not used	----------
F_VEE	Not used	----------
VCC41	Not used	----------
VCC9	Not used	----------
F_VCC	Not used	----------
F_OE	Not used	----------
F_BUSY	Not used	----------
MON_CR	Not used	----------
MON_CB	Not used	----------
MON_B	Not used	----------
MON_G	To monitor lower video drive signal to the LCD Panel at Pin 27 of IC901 on Main C.B.A.	 Camera Mode
HID	To monitor HID signal at Pin 36 of IC3201 on Main C.B.A.	 Rec/PB Mode
ENVELOPE	To monitor Envelope signal at Pin 41 of IC5001 on Main C.B.A.	 PB Mode
RF GND	Not used	----------
RECI	Not used	----------
SPA	To monitor SPA signal at Pin 35 of IC3201 on Main C.B.A.	 PB Mode

Signal Name (on board)	Description	Waveforms
ATFI	To monitor ATF signal at Pin 20 of IC3201 on Main C.B.A.	----------
VCO	Not used	----------
D_GND	Grounding terminal	----------
TP1	Not used	----------
IRISOPEN	Not used	----------
MB (VREF_+/-)	Not used	----------
MA	Not used	----------
CPOB	To monitor LCD red signal at Pin 8 of IC8001 on LCD C.B.A.	 Camera Mode
FNO	To monitor LCD green signal at Pin 6 of IC8001 on LCD C.B.A.	 Camera Mode
VREF_H/L	To monitor LCD blue signal at Pin 4 of IC8001 on LCD C.B.A.	 Camera Mode
CAM-A_GND	Not used	----------
CDS	To monitor capstan FG signal at Pin 24 of IC2001 on Main C.B.A.	 Rec/PB Mode(SP)  Rec/PB Mode(LP)
CAM5V	Power terminal	----------
CDS/AGC	Not used	----------
VREF_H/L	Not used	----------
ADIN	Not used	----------

6.1.7. HOW TO REMOVE A JAMMED TAPE

Remove a jammed tape in Electrical Method as follows:

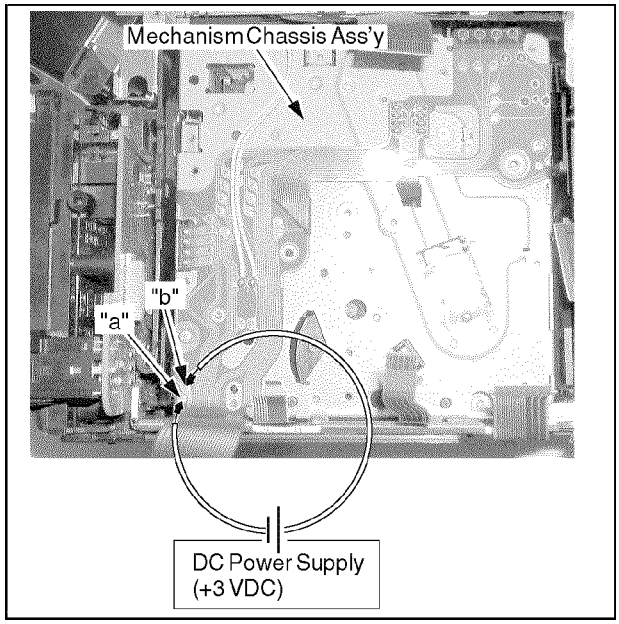
1. Remove the Cabinet Parts. Then, remove the 3 Screws and the Mechanism Base Unit from the Mechanism Chassis Ass'y as shown. Refer to "CABINET SECTION" & "MECHANISM SECTION" in DISASSEMBLY/ASSEMBLY PROCEDURES.

2. Apply +3 V DC Power Supply to the Portion "a" and "b" on the Mechanism F.P.C. Unit.

Note:

DO NOT let eject the Garage Unit with grasping the Cassette Cover. If the Garage Unit is in the up position, a cassette tape may be damaged.

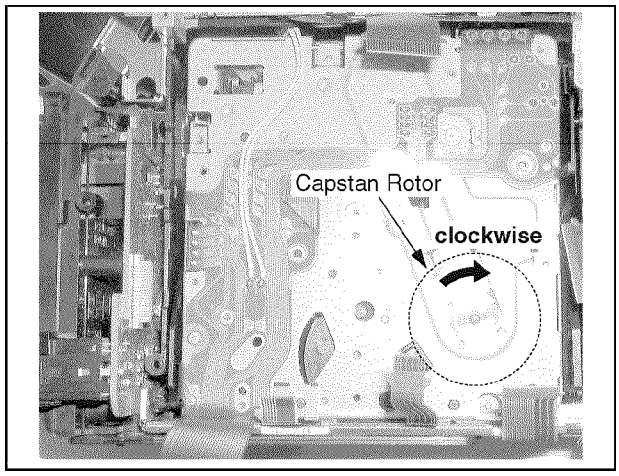
Fig. 6-1



3. When the Mechanism is in EJECT position (snapped sound), remove the Power Supply immediately.

4. Rewind the tape into a cassette tape by turning the Capstan Rotor clockwise with grasping the Cassette Cover.

Fig. 6-2



5. Take out a cassette tape from the Garage Unit.

6.1.8. EEPROM DATA

CAUTION:

Be sure to save the EEPROM data using PC-EVR Adjustment Program before service and adjustment in order to make sure to avoid an accidental data loss, etc. as follows. Refer to "SET UP OF PC-EVR ADJUSTMENT PROGRAM" in ELECTRICAL ADJUSTMENT.

EEPROM IC

C.B.A.	EEPROM IC Ref. No.
Main C.B.A.	IC6007

1.How to save the EEPROM data to your PC

1. Start up the PC-EVR Adjustment Program.
2. Select "3. Read (Save)/Write All EEPROM data." in Main menu, and then press "Enter" key.
3. Select "5. Save all EEPROM data." in Read (Save)/Write All EEPROM data menu, and then press "Enter" key.
4. Input the file name, and then press the "Enter" key. The data of EEPROM IC will be stored to your PC.

2.How to write the EEPROM data which was stored in your PC to EEPROM IC

1. Start up the PC-EVR Adjustment Program.
2. Select "3. Read (Save)/Write All EEPROM data." in Main menu, and then press "Enter" key.
3. Select "6. Writing from stored data files." in Read (Save)/Write All EEPROM data menu, and then press "Enter" key.
4. Input the saved file name, and then press "Enter" key. The data of EEPROM IC will be written in EEPROM IC.

3.How to initialize the EEPROM IC

When the Main C.B.A. is replaced, be sure to write the initial data to EEPROM IC. And adjust the camcorder.

1. Start up the PC-EVR Adjustment Program.
2. Select "3. Read (Save)/Write All EEPROM data." in Main menu, and then press "Enter" key.
3. Select "6. Writing from stored data files." in Read (Save)/Write All EEPROM data menu, and then press "Enter" key.
4. Input the saved file name, and then press "Enter" key. The data of EEPROM IC will be written in EEPROM IC.
   OR;
   Select "7. Writing of Initial data." and then press "Enter" key. And press "Enter" key once again.

4.How to input ID Number

The ID number is in the EEPROM.

There are two ways to write the data of EEPROM IC after replacing Main C.B.A. as follows:

- Selecting "6. Writing from stored data files," ID Number with stored data

file will be written automatically.

- Selecting "7. Writing of initial data," ID Number needs to be input. There are two methods, "a" or "b," to input ID Number as follows.

a When writing ID Number from the saved data:

1. Select "3. Read (Save)/Write All EEPROM data." in Main menu, and then press "Enter" key.

2. Input the saved file name, and then press "Enter" key. ID Number will be written automatically.

b When the original ID information can not be read because of destruction of EEPROM etc.:

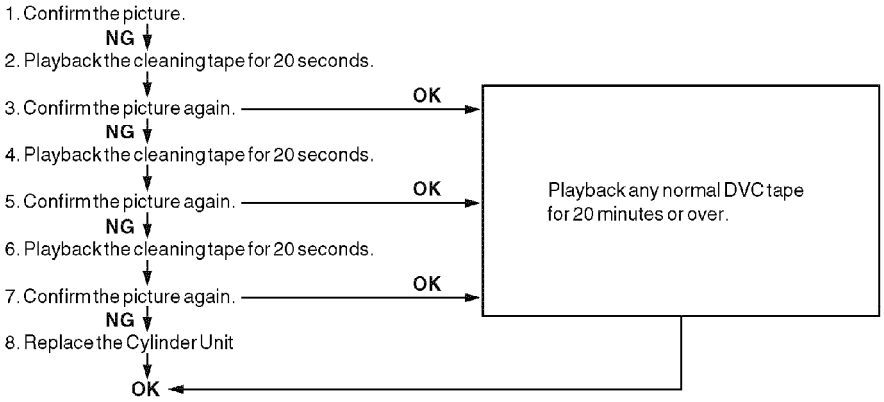
1. Select "3. Read (Save)/Write All EEPROM data." in Main menu, and then press "Enter" key.

2. Select "8. Write ID from stored file." and then press "Enter" key. ID Number will be written automatically.

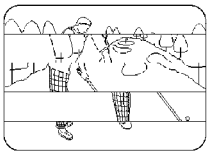
6.1.9. HOW TO USE THE DVC HEAD CLEANING TAPE / VFK1451

Please use the cleaning tape as described below.

Note: This cleaning tape has a total playback time of 2 minutes 30 seconds. it can be used 30 times.



The picture will look like this in case of clogged video head.



6.1.10. HOW TO REPLACE THE LAMP (LSLL0028) OF BUILT-IN LIGHT

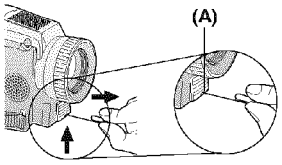
Fig. 7

DANGER:
Use only replacement Lamp (PART NO. LSLL0028) supplied by Panasonic to reduce risk of fire.
Handle new Lamp with cloth or tissue as skin oils decrease Lamp life.
Remove Light Protector and allow Lamp to cool before replacing to avoid possible burn hazard.

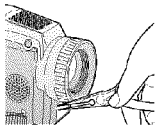
Replacing the lamp

Before you begin
Set POWER to OFF.

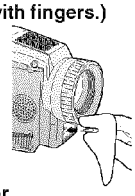
1 Insert a rigid wire, such as an extended paper clip into point (A) and lift cover up.



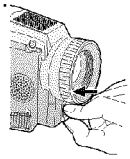
2 Using Tweezers or needle-nose pliers, carefully remove lamp.



3 Replace lamp using a clean cloth or tissue. (Do not touch with fingers.)



4 Replace Light Protector.



Note
Handle lamp gently. Excessive force may cause lamp to crack.

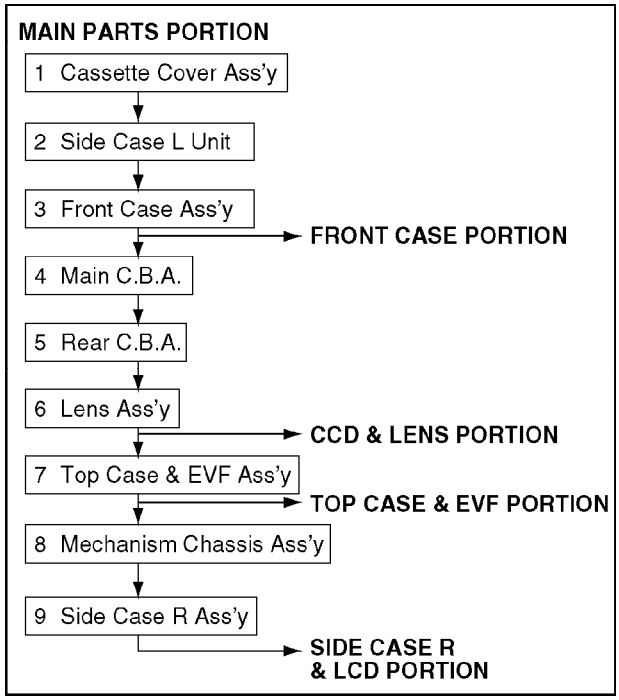
7. DISASSEMBLY/ASSEMBLY PROCEDURES

7.1. CABINET SECTION

7.1.1. DISASSEMBLY FLOWCHART

This flow chart indicates the disassembly steps of the cabinet parts and the P.C.Boards in order to gain access to item (s) to be serviced. When reassembling, perform the step (s) in the reverse order. Bend, route and dress the wires as they were originally.

Fig. D1



Note :

1. **When removing the cabinet, work with care so as not to break the Locking Tabs.**
2. **Place a cloth or some other soft material under the P.C. Boards or Unit to prevent damage.**
3. **When reinstalling, ensure that the connectors are connected and electrical components have not been damaged.**
4. **Do not supply power to the unit during disassembly and reassembly.**

7.1.2. Disassembly Method

7.2. MECHANISM SECTION

This procedure starts with the condition that the cabinet parts and Main C.B.A. have been removed.
When reassembling, perform the step(s) in the reverse order.
Perform all disassembly/reassembly and alignments procedures in STOP Position except disassembly/reassembly and alignment procedures which have the special Notes.

STEP LOC. No.	Prior Step (s)	Part	Fig. No.	Remove	Alignment /Adjustment
①	-----	Mechanism Base Unit	DM3	3(413), (478)	
②	-----	Guide Piece L	DM4	(475), (L-2)	
③	-----	Guide Piece R	DM4	(476), (L-2)	
④	2,3	Garage Unit	DM4		
⑤	-----	Cylinder Unit	DM5	3(423)	Adjustment
⑥	2,3,4	Damper Unit	DM6	(304)	
⑦	1	DEW Sensor/ DEW Cable	DM7	Unsolder	
⑧	1,7	Mechanism F.P.C. Unit	DM8	2(478), 4(L-3), Unsolder	
⑨	-----	Reduction Gear B	DM9	(477)	
⑩	2,3,4	Mechanism Cover Unit	DM10	(435), (L-4), (472)	
⑪	2,3,4,10	Idler Arm Unit	DM11		
⑫	2,3,4,10,11	Center Gear	DM11		
⑬	2,3,4	Tension Arm Unit	DM12	(477)	Adjustment
⑭	2,3,4,13	S Reel Table	DM13	(478)	
⑮	2,3,4,	T Reel Table	DM13	(479)	
⑯	-	Not used	-	-	
⑰	2,3,4	T Brake Unit	DM15	(L-5), Screw, Plate	
⑱	-	Not used	-	-	
⑲	2,3,4	Pinch Arm Unit	DM16	(473), Hooking Portions	Adjustment
⑳	5,9,13,19	Rail	DM17	(475), (L-6), 4(L-7)	
㉑	5,9,13,19,20	Cylinder Base Unit	DM18	3(423)	Adjustment
㉒	5,9,13,19,20	S Arm Unit	DM19		Gear Alignment
㉓	5,9,13,19,20,22	T Arm Unit	DM19		Gear Alignment
㉔	5,9,13,19,20,22	S Post Unit	DM19		Adjustment
㉕	5,9,13,19,20,22,23,24	T Post Unit	DM19		Adjustment
㉖	5,9,13,19,20,21,22	Loading Motor Unit	DM20	2(424)	
㉗	2,3,4,10,11,12,13,14,15	Sensor F.P.C.	DM21	2(424)	
㉘	2,3,4,10,11,12,13,14,15,27	Tension Drive Arm	DM22		
㉙	2,3,4,10,11,12,13,14,15,27,28	S Brake Drive Lever	DM22		
㉚	2,3,4,10,11,12,13,14,15,27,28,29	Cam Gear	DM23		Gear Alignment
㉛	2,3,4,10,11,12,13,14,15,19,27	Pinch Drive Arm	DM24		
㉜	2,3,4,5,9,10,11,12,13,14,15,19,20,22,23,24,25,27,28,29,30	Intermediate Gear	DM24		Gear Alignment
㉝	1,2,3,4,5,7,8,9,10,11,12,13,14,15,19,20,21,22,23,24,25,27,28,29,30	Mode Switch	DM25	(432)	Gear Alignment
㉞	1,2,3,4,7,8	MIC Switch	DM26	(433)	
㉟	2,3,4,10,11,12,13,14,15,17,19,27,28,29,30,31	Main Plate Unit	DM27		Gear Alignment
㊱	2,3,4,10,11,12,13,14,15,17,19,27,28,29,30,31,35	T4 Drive Arm	DM28		
㊲	2,3,4,10,11,12,13,14,15,17,19,27,28,29,30,31,35,36	Drive Pulley	DM29		
㊳	2,3,4,5,6,9,10,11,12,13,14,15,17,19,20,21,22,23,24,25,27,28,29,30,31,35,36,37,39	Capstan Unit	DM30	(471), 2(434)	Adjustment
㊴	2,3,4,5,6,9,10,11,12,13,14,15,17,19,20,21,22,23,24,25,27,28,29,30,31,35,36,37,38	Timing Belt	DM30		
㊵	2,3,4,5,6,9,10,11,12,13,14,15,17,19,20,21,22,23,24,25,27,28,29,30,31,35,36,37,38,39	Capstan Adjust Spring	DM30		
㊶	1,2,3,4,7,8,34	Lock Lever Unit	DM31	2(478), Hooking Portion	
㊷	1,2,3,4,7,8,34,41	Lock Pick Lever	DM31		

A B C D E F

How to read chart shown above:
A: Order of Procedure steps.
When reassembling, perform steps(s) in reverse order.
These numbers are also used as the identification (location) No. of parts in Figures.
B: Steps to be completed prior to the current step.
C: Part to be removed or installed.
D: Fig. No. showing Procedure or Part Location.
E: Identification of part to be removed, unhooked, unlocked, released, unplugged, unclamped, or unsoldered.
2(478)= 2 Screws (478), 2(L-1) =2 Looking Tabs (L-1)
F: Alignment/ Adjustment which is required when installing or replacing each parts.

CAUTION:
a. Use a wrist strap to provide ESD protection while disassembling or assembling.
b. Removed Cut Washer is not reusable. If removed, install a new one.
Following Cut Washers are to be used:

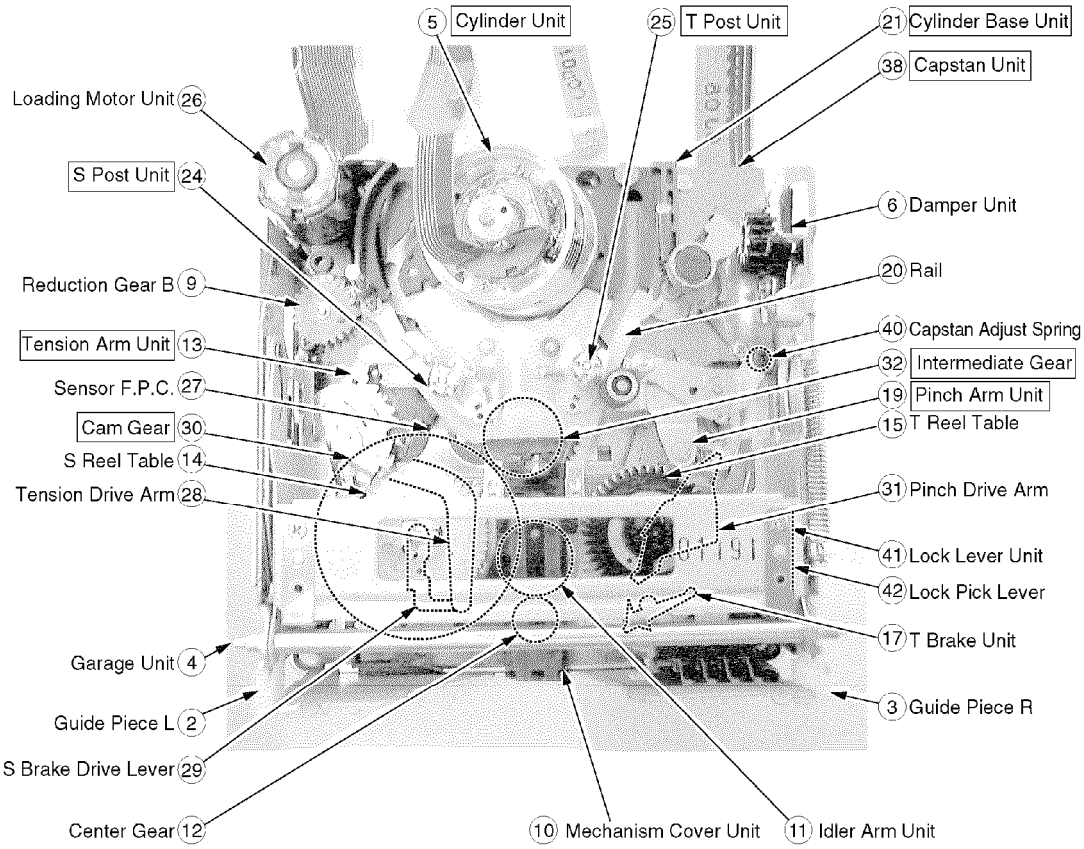
Ref. No.	Part No.
(473)	VMX2026
(475)	VMX2750
(477)	VMX2028

7.2.1. Inner Parts Location

Note: BOX indicates alignment (Gear alignment or Tape Path Alignment with L.I.S.T.A.) required when a part is replaced.

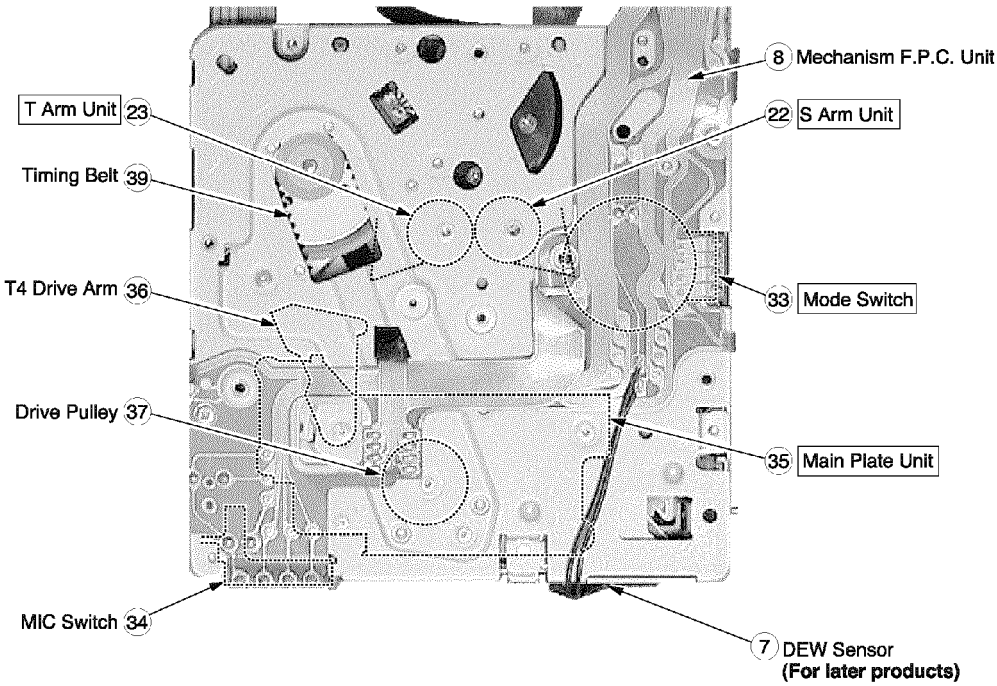
7.2.1.1. TOP VIEW

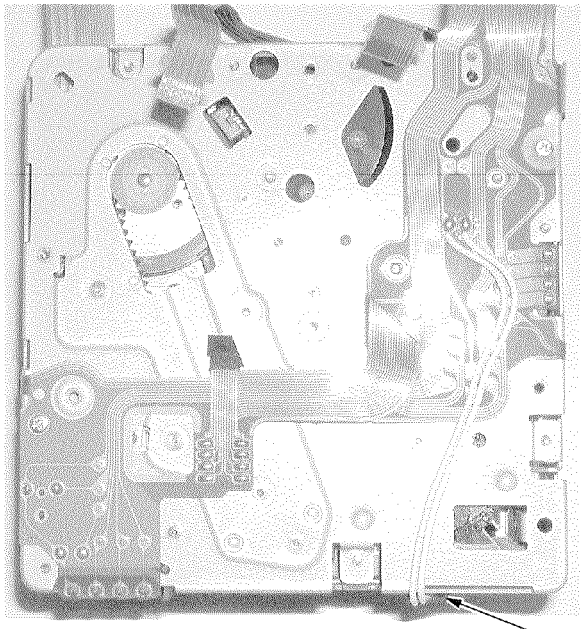
Fig. DM1-1



7.2.1.2. BOTTOM VIEW

Fig. DM1-2

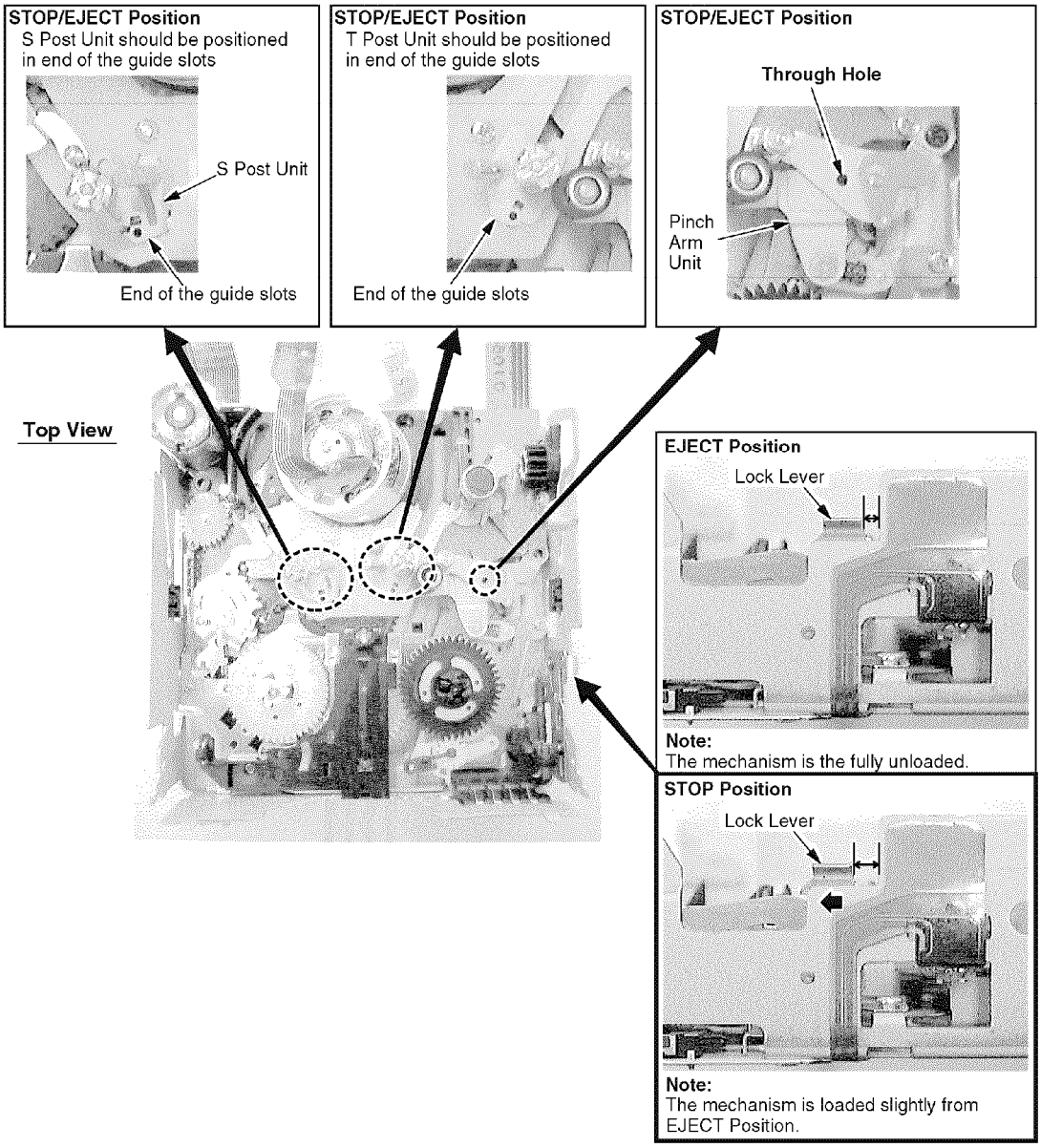




7.2.2. STOP Position Confirmation

Check the following points to confirm that the Mechanism is in STOP Position from the top side.

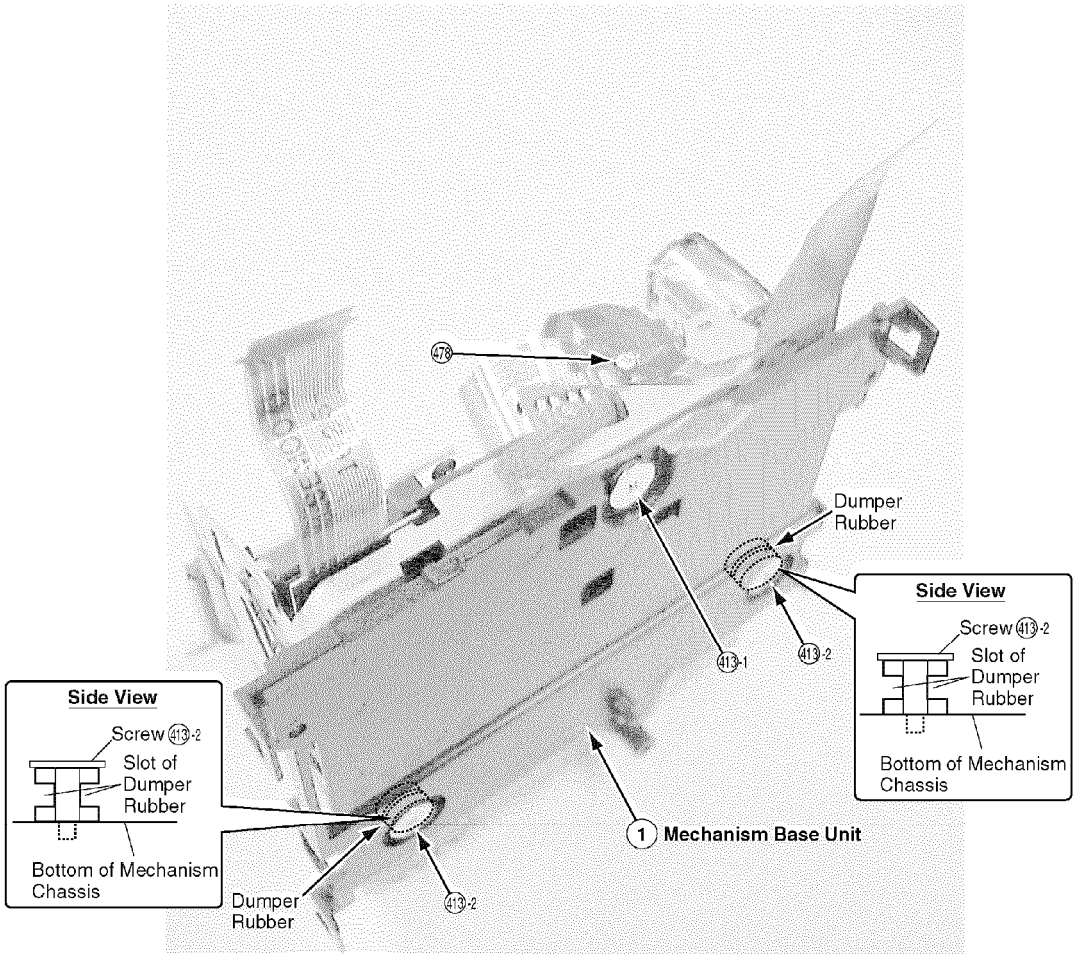
Fig. DM2



Perform all disassembly/reassembly and alignments procedures in STOP Position except disassembly/reassembly and alignment procedures which have the special notes.

7.2.3. Mechanism Base Unit

Fig. DM3

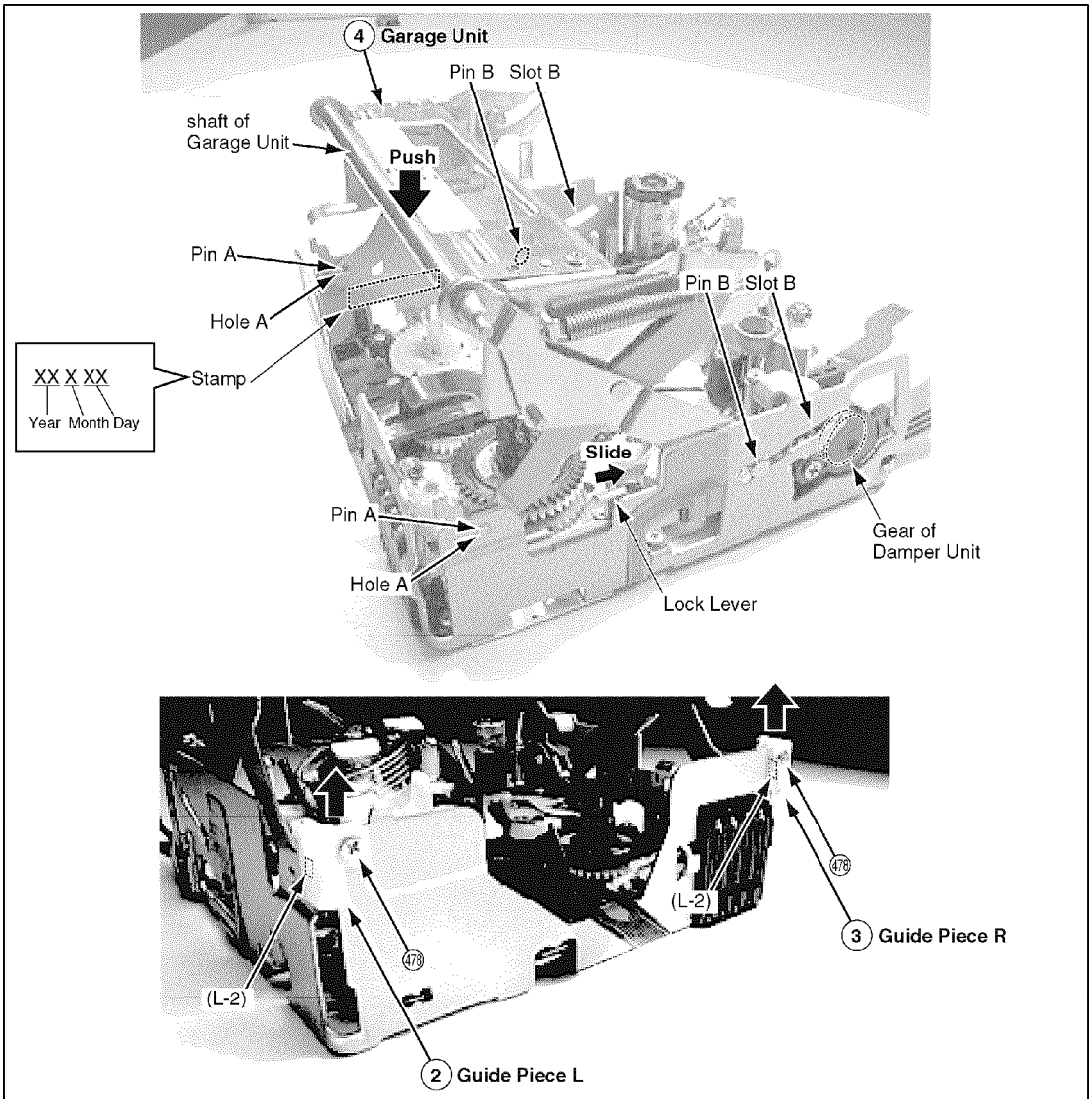


Disassembly Notes:
1. Use extreme care when removing the Grounding Plate. Do not touch the Video Heads during servicing.
2. When removing the Grounding Plate from the Mechanism Chassis, turn it as indicated by the arrow.

Reassembly Notes:
1. **Installation of Mechanism Base Unit**
1) Install the 2 Screws 413-2 on the Mechanism Chassis.
2) Then, install the Mechanism Base Unit so that it slide to slots of the Dumper Rubber.
3) Then, install a Screw 413-1.

7.2.4. Guide Piece L, Guide Piece R, Garage Unit

Fig. DM4

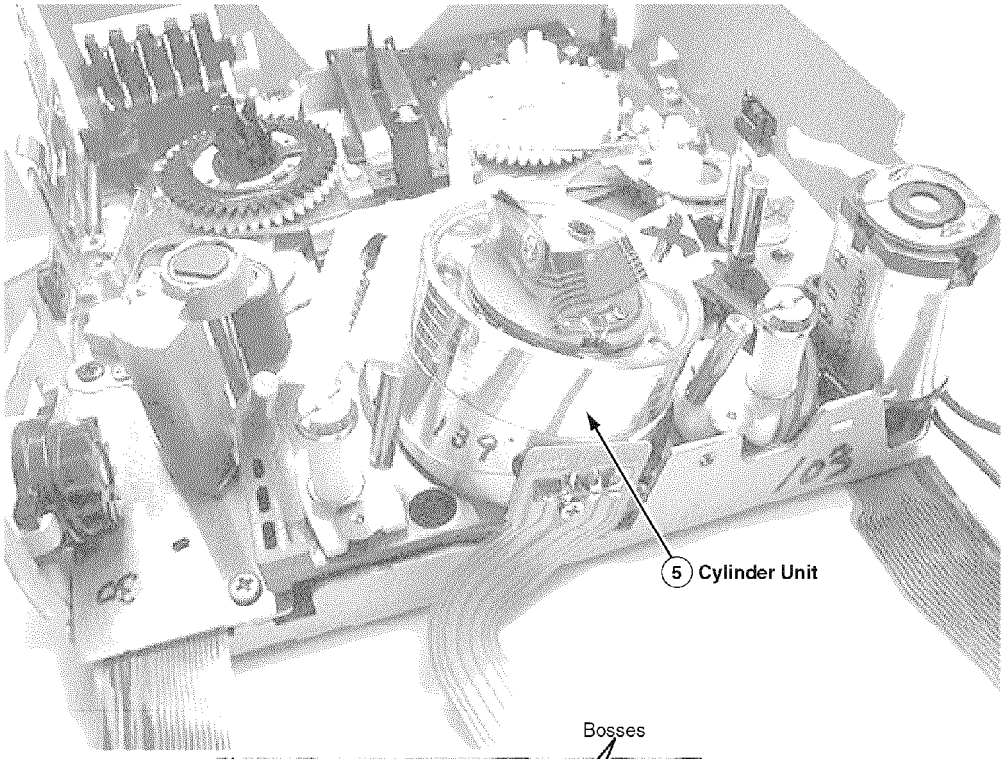


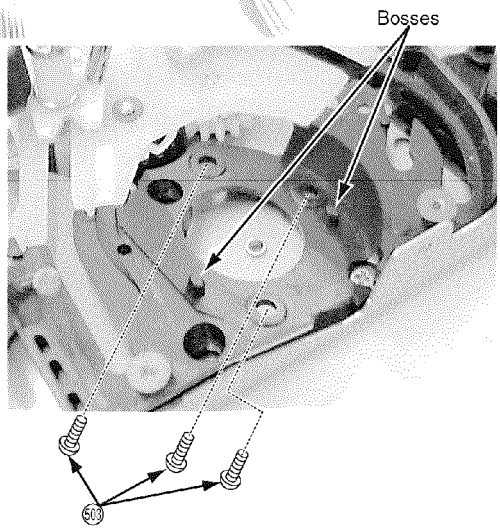
Disassembly Notes:
1. Before removing the Garage Unit, eject the Garage Unit by sliding the Lock Lever to the direction of the arrow.
2. When removing the Garage Unit, pull 2 Pin A from 2 Hole A, and then pull 2 Pin B from 2 Slot B.

Reassembly Notes:
1. Installation of Garage Unit
1) Install the Garage Unit so that 2 Pin B of Garage Unit are inserted to 2 Slot B on chassis.
2) Insert the 2 Pin A to 2 Hole A on chassis.
CAUTION:
When making the Garage Unit in the down position, be sure to push the shaft of Garage Unit as shown. Otherwise, the Garage Unit may be damaged.

7.2.5. Cylinder Unit

Fig. DM5



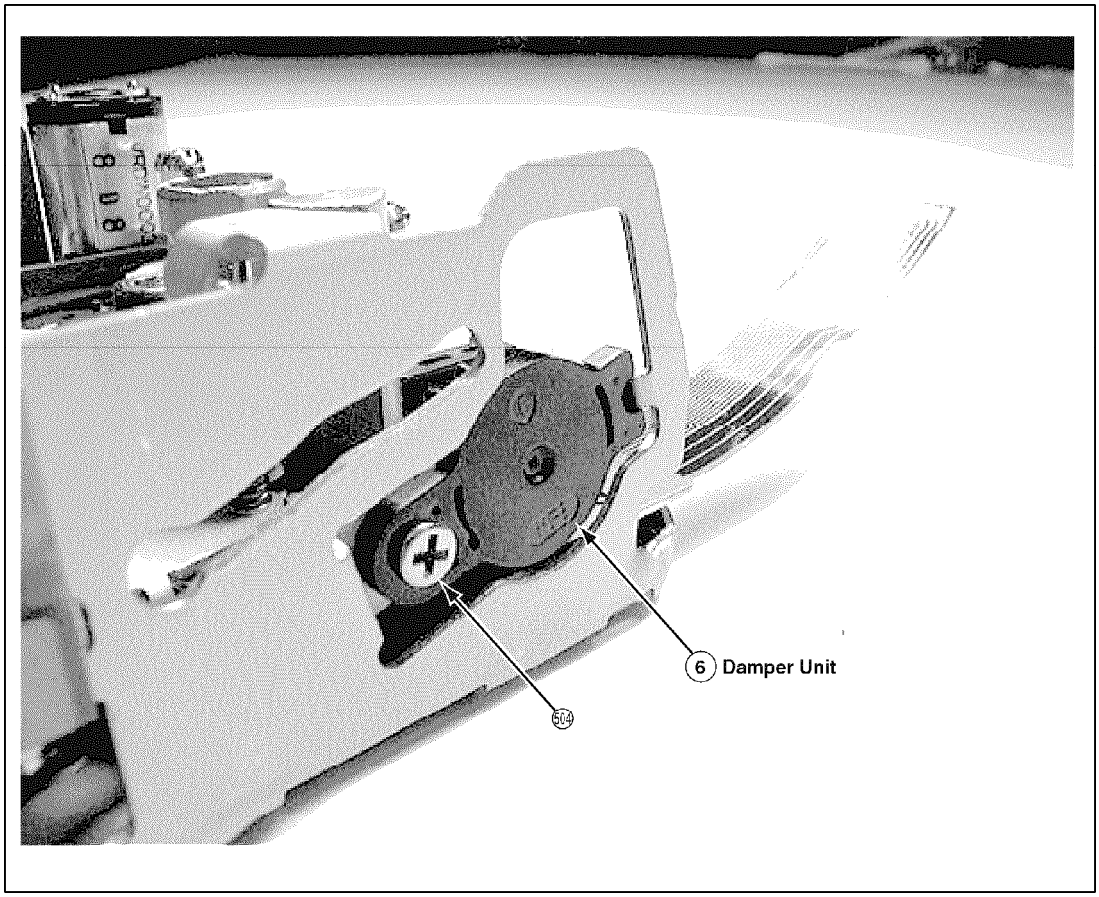


Disassembly Notes:
1. Use extreme care when removing or replacing the Cylinder Unit. Do not touch the Video Heads during servicing. Use extreme care to handle the Cylinder Unit.

Reassembly Notes:
1. Installation of Cylinder Unit
1) Install the Cylinder Unit so that 2 Holes on the Cylinder Unit surface fit over the 2 Bosses on the Chassis. Then, tighten 3 Screws (503).

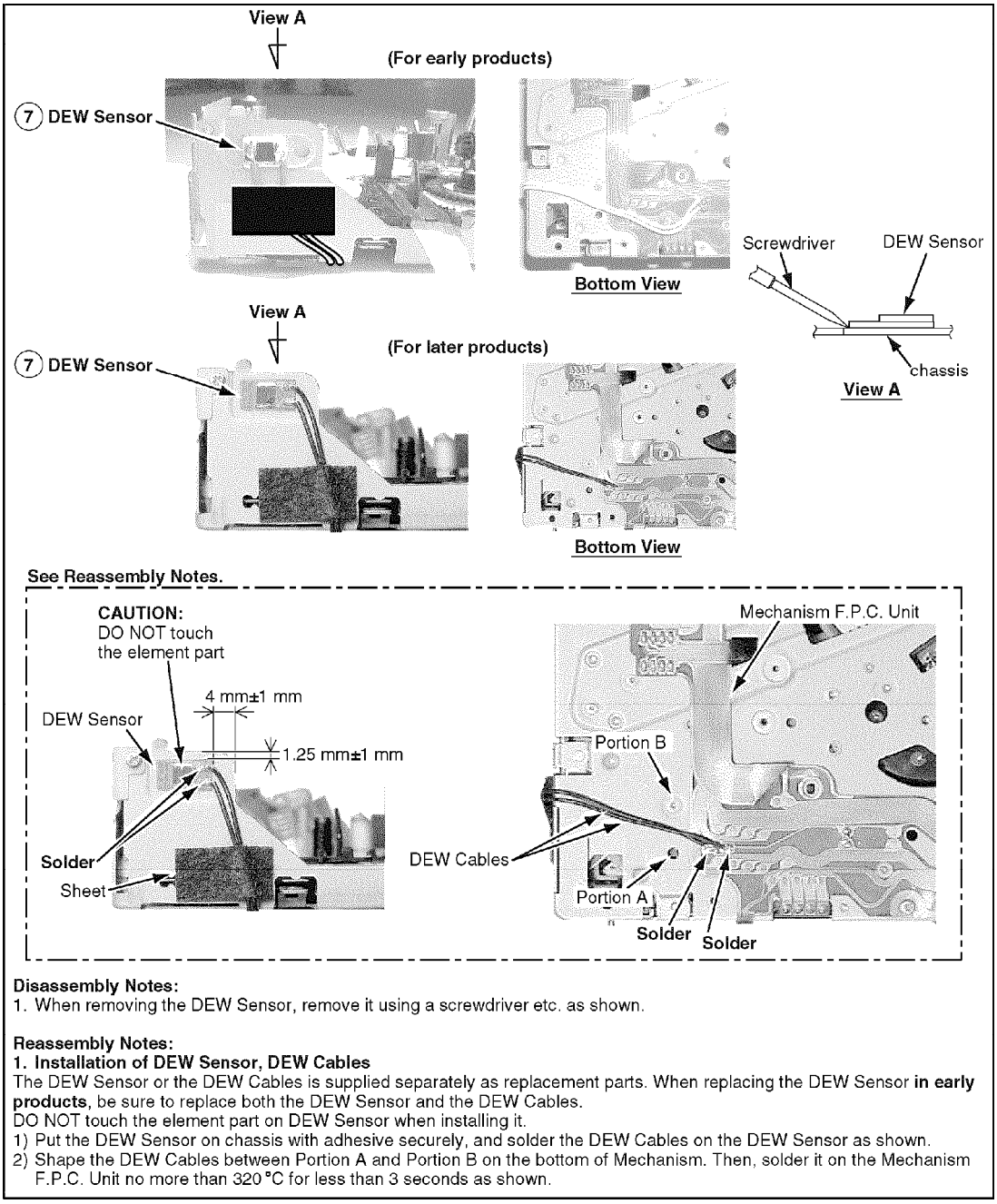
7.2.6. Dumper Unit

Fig. DM6



7.2.7. DEW Sensor, DEW Cable

Fig. DM7

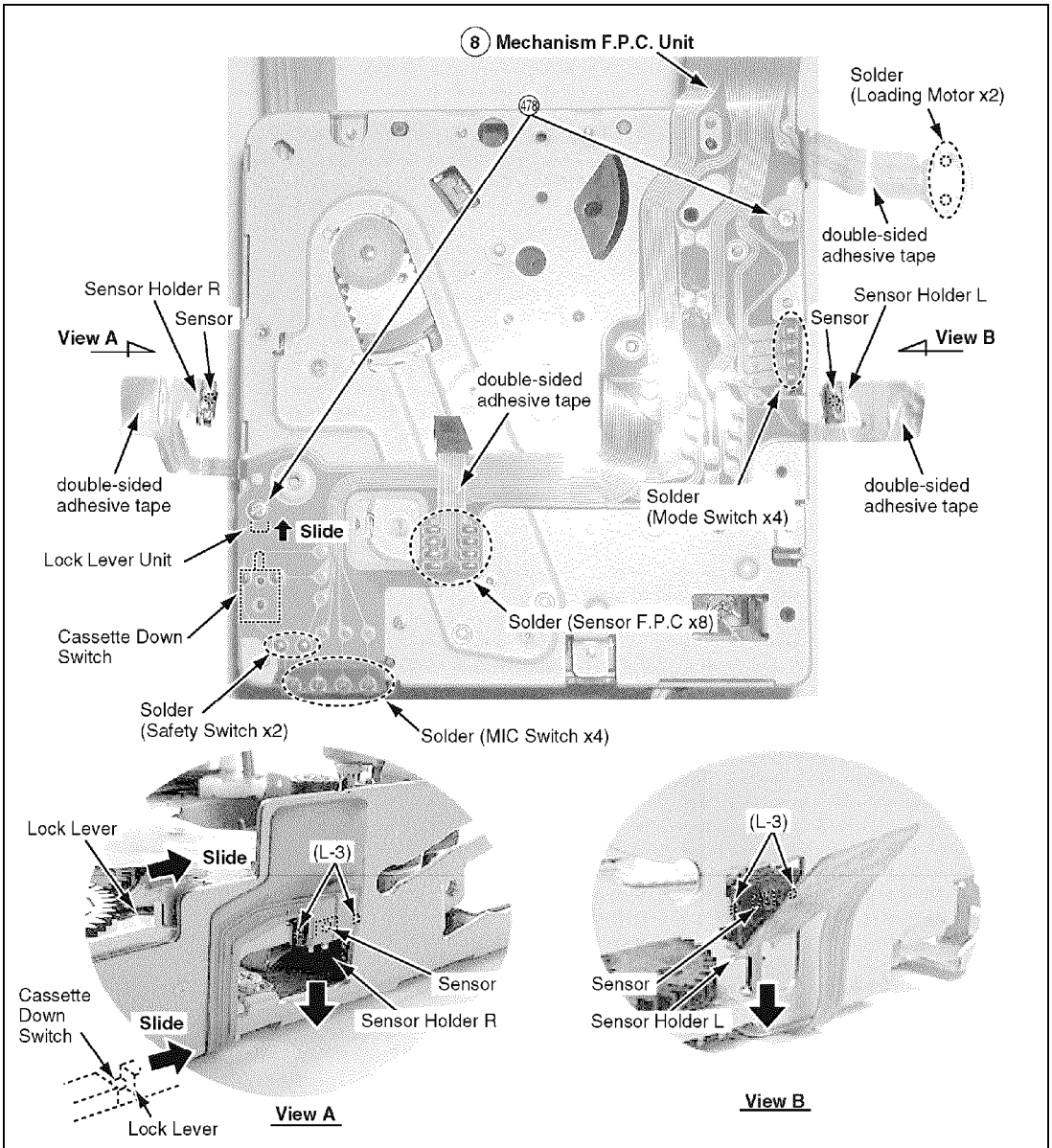


Disassembly Notes:
1. When removing the DEW Sensor, remove it using a screwdriver etc. as shown.

Reassembly Notes:
1. Installation of DEW Sensor, DEW Cables
The DEW Sensor or the DEW Cables is supplied separately as replacement parts. When replacing the DEW Sensor **in early products**, be sure to replace both the DEW Sensor and the DEW Cables.
DO NOT touch the element part on DEW Sensor when installing it.
1) Put the DEW Sensor on chassis with adhesive securely, and solder the DEW Cables on the DEW Sensor as shown.
2) Shape the DEW Cables between Portion A and Portion B on the bottom of Mechanism. Then, solder it on the Mechanism F.P.C. Unit no more than 320 °C for less than 3 seconds as shown.

7.2.8. Mechanism F.P.C. Unit

Fig. DM8



Disassembly Notes:

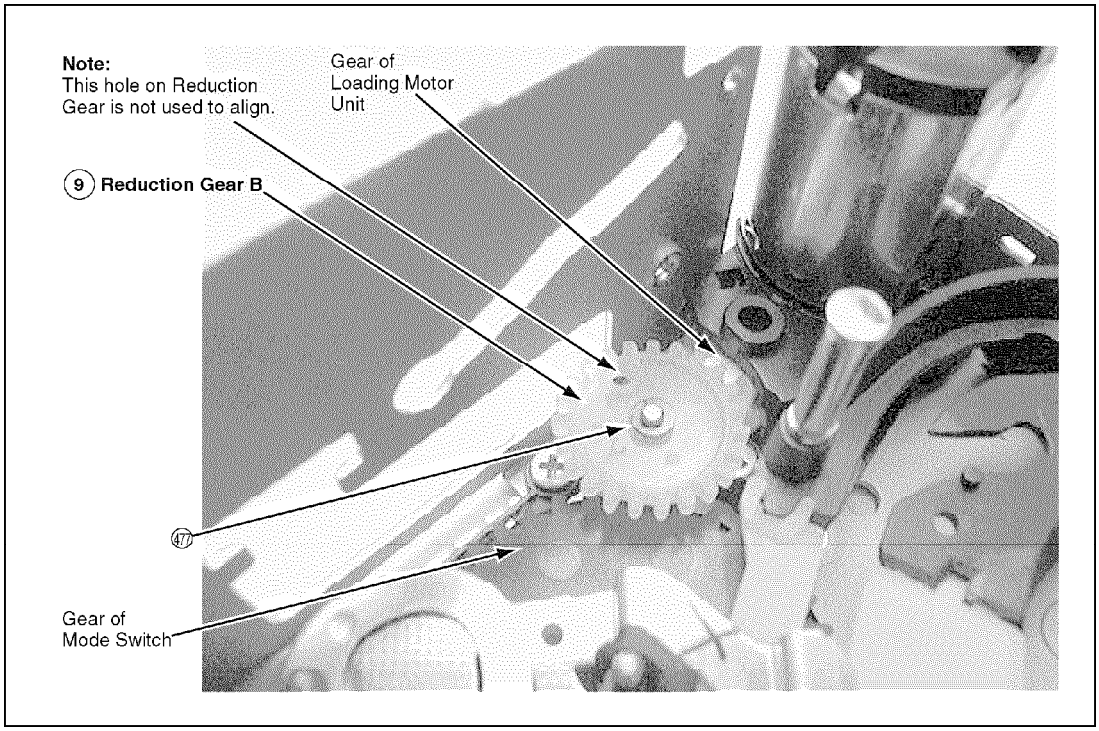
1. DO NOT touch the Sensor on Sensor Holder Unit when removing.
2. When removing the Sensor Holder L & R, slide the Sensor Holder Unit as indicated by the arrow while releasing the 4 Locking Tabs (L-3).

Reassembly Notes:

1. Before installing the Mechanism F.P.C. Unit, confirm that the Lock Lever is slid as indicated by the arrow and held as shown. Otherwise, the Lock Lever may damage the Cassette Down Switch.
2. Solder the points on Sensor F.P.C. x8, MIC Switch x4, Mode Switch x4, Safety Switch x2, and Loading Motor x2 no more than 310 °C for less than 2 seconds when soldering.
3. When installing the Mechanism F.P.C. Unit, secure the Sensor Holder L & R with the 4 Locking Tabs (L-3), and then put with double-sided adhesive tape.

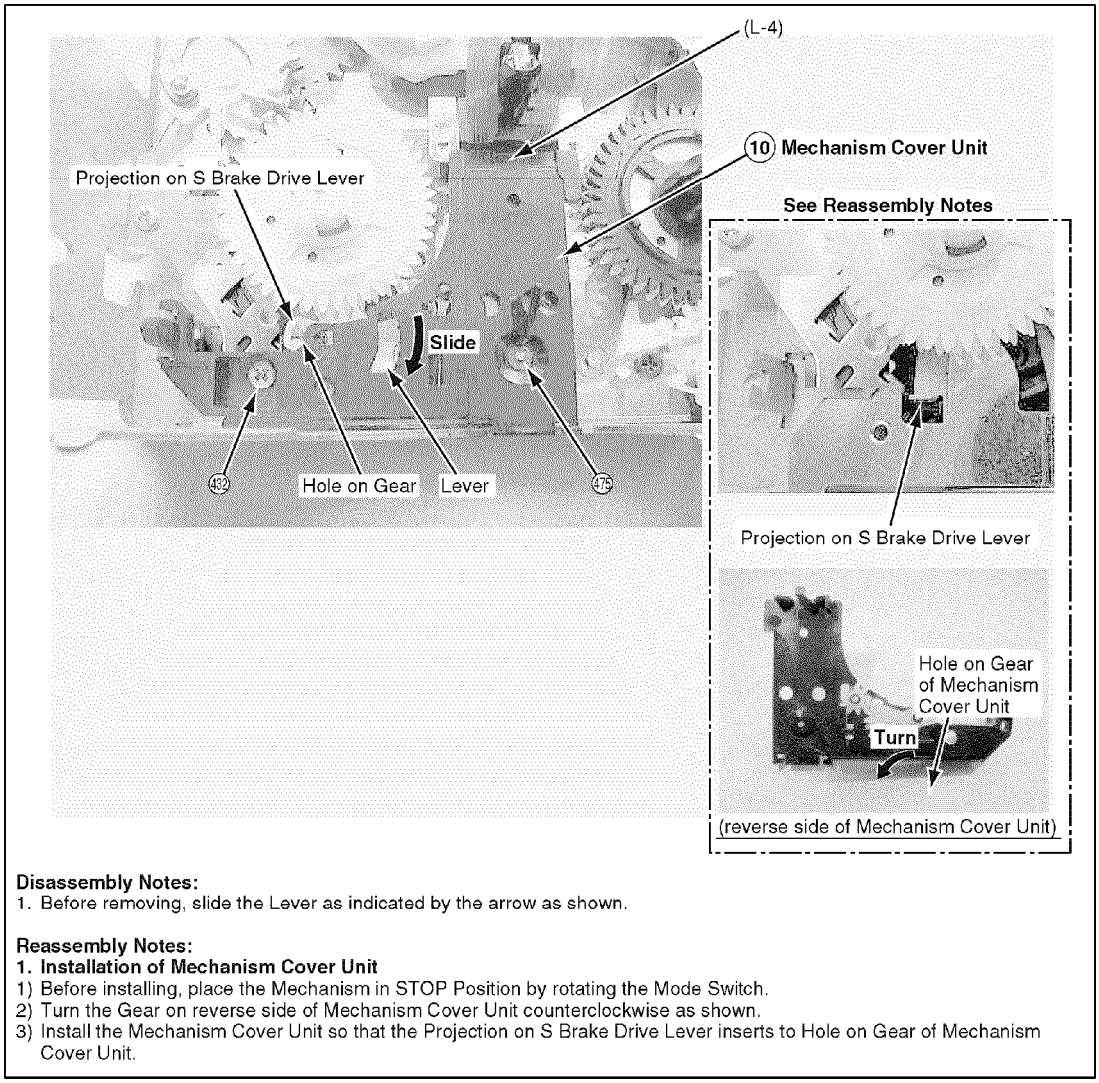
7.2.9. Reduction Gear B

Fig. DM9



7.2.10. Mechanism Cover Unit

Fig. DM10

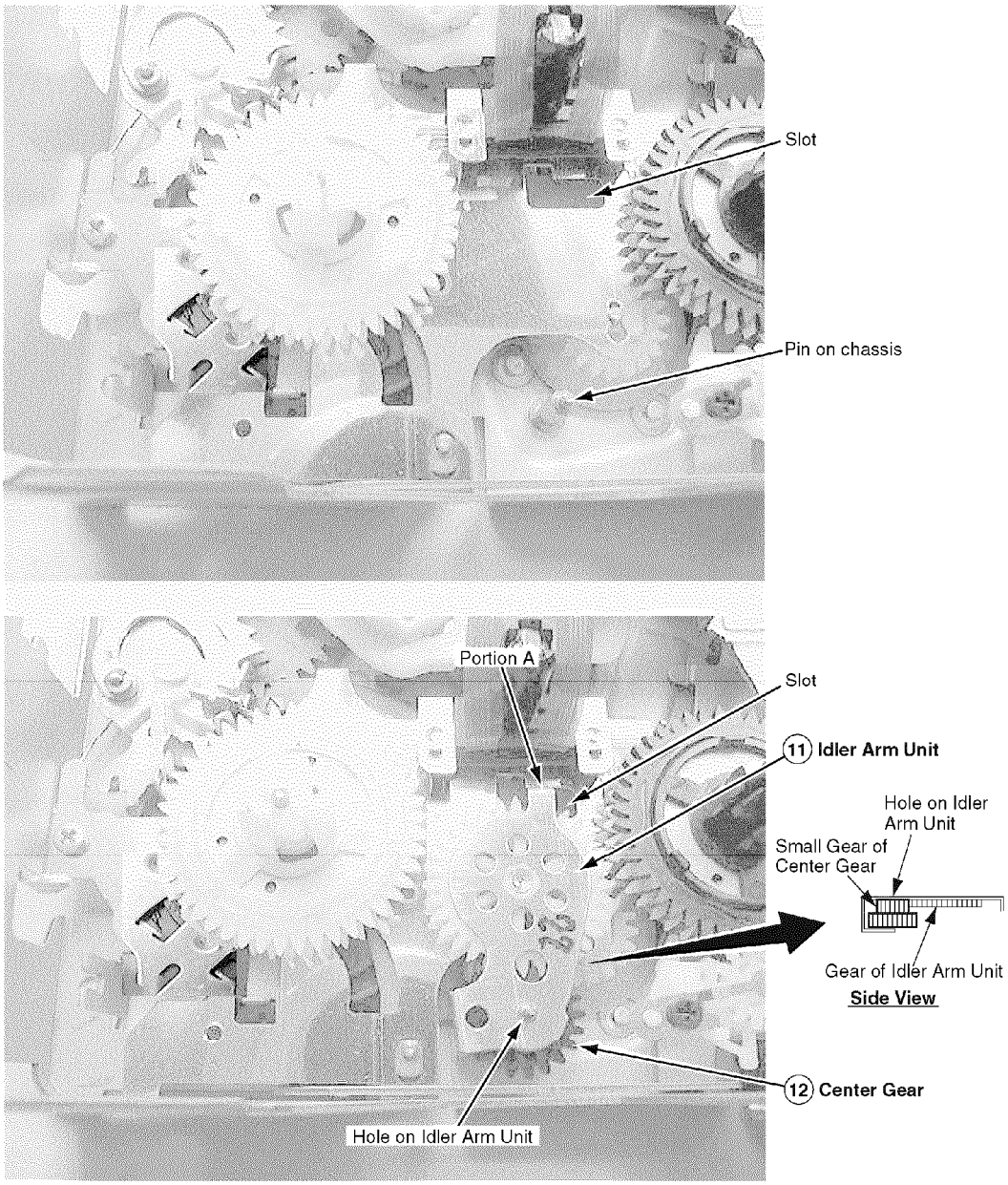


Disassembly Notes:
1. Before removing, slide the Lever as indicated by the arrow as shown.

Reassembly Notes:
1. Installation of Mechanism Cover Unit
1) Before installing, place the Mechanism in STOP Position by rotating the Mode Switch.
2) Turn the Gear on reverse side of Mechanism Cover Unit counterclockwise as shown.
3) Install the Mechanism Cover Unit so that the Projection on S Brake Drive Lever inserts to Hole on Gear of Mechanism Cover Unit.

7.2.11. Idler Arm Unit, Center Gear

Fig. DM11

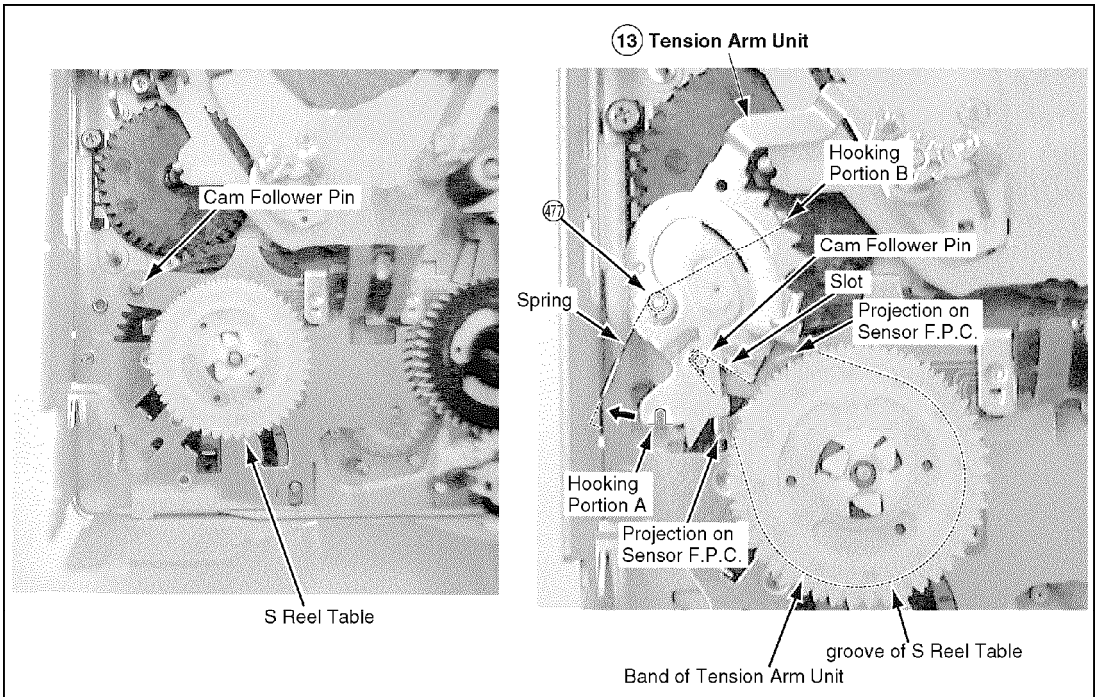


Disassembly Notes:
1. When removing the Idler Arm Unit, remove both of Idler Arm Unit and Center Gear together.

Reassembly Notes:
1. Installation of Idler Arm Unit and Center Gear
1) Set the Center Gear into Idler Arm Unit so that Hole on Idler Arm Unit are Through Holes. Confirm that the Small Gear of Center Gear engages with Gear of Idler Arm Unit.
2) Install Both of them together so that Pin on chassis is inserted to Hole on Idler Arm Unit, and Portion A is in Slot.

7.2.12. Tension Arm Unit

Fig. DM12



Disassembly Notes:

1. Work carefully so as not to damage the Band of Tension Arm Unit when removing.

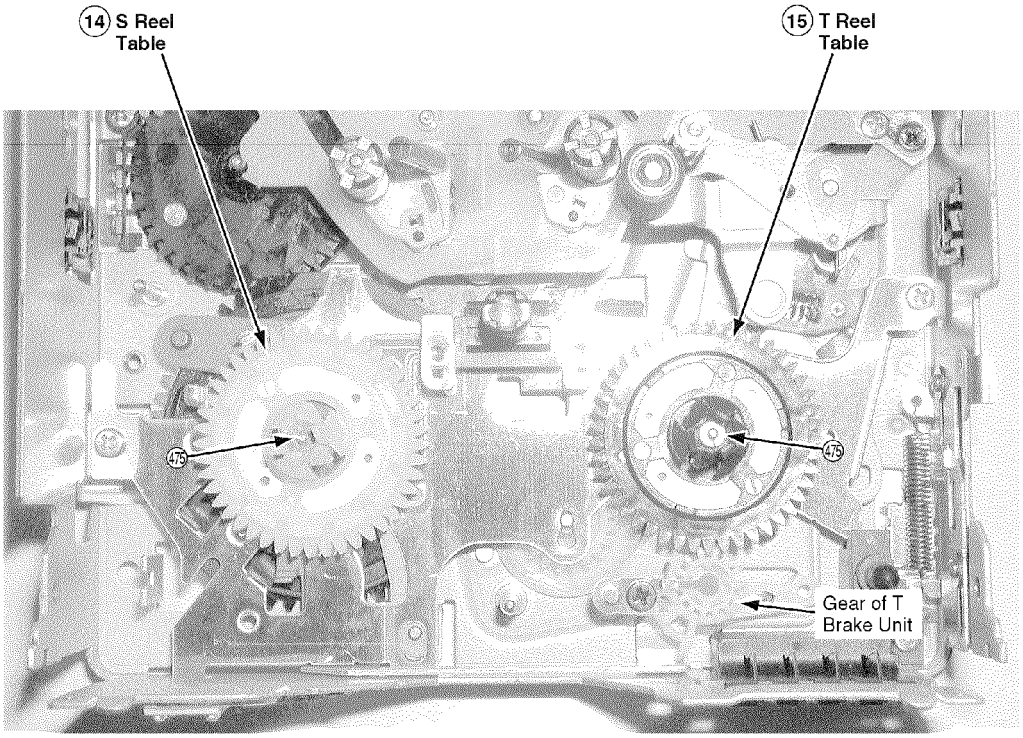
Reassembly Notes:

1. Installation of Tension Arm Unit

1) Before installing the Tension Arm Unit, place the Mechanism in STOP Position by rotating the Mode Switch, and then hook the Spring of Tension Arm Unit to Hooking Portion A and Hooking Portion B.
2) Install the Tension Arm Unit while hooking the Band of Tension Unit to groove of S Reel Table.
3) Confirm that Band of Tension Arm Unit and Projection on Sensor F.P.C. are in the correct position, and that Cam follower Pin is set into Slot of Tension Arm Unit.
4) After installing the Tension Arm Unit, unhook the Spring from Portion A, and then confirm that the Spring is in the lower position than Sensor F.P.C.

7.2.13. S Reel Table, T Reel Table

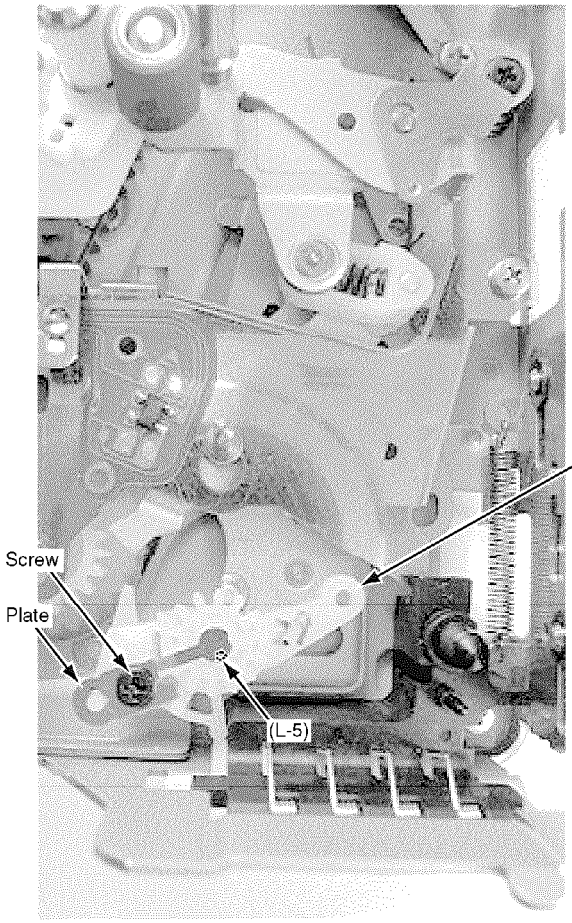
Fig. DM13



Reassembly Notes:
1. Installation of S Reel Table and T Reel Table
1) Confirm that the Gear of T Reel Table engages with the Gear of T Brake Unit.

7.2.14. T Break Unit

Fig. DM15

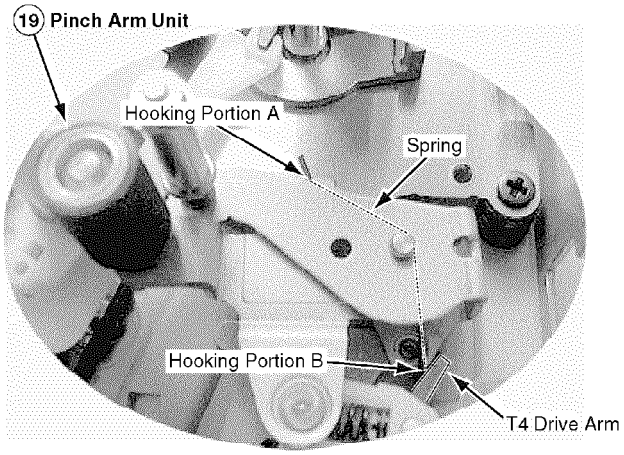


Disassembly Notes:
1. When removing the T Brake Unit, remove a Screw and the Plate. Then, remove the T Brake Unit while releasing the Locking Tab (L-5).
2. Use extreme care when removing the T Brake Unit.
   If Locking Tab (L-5) is broken, install a new T Brake Unit.

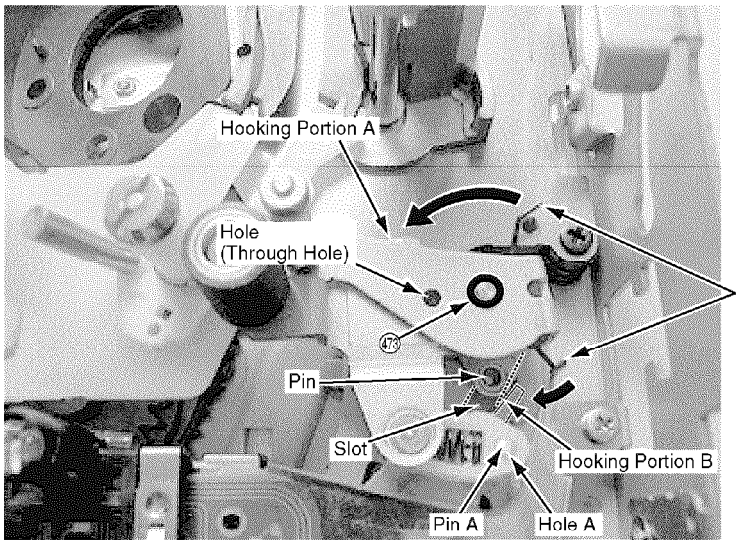
Reassembly Notes:
1. When installing the T Brake Unit, DO NOT apply pressure to T Brake Unit Plate.

7.2.15. Pinch Arm Unit

Fig. DM16



See Reassemly Notes.



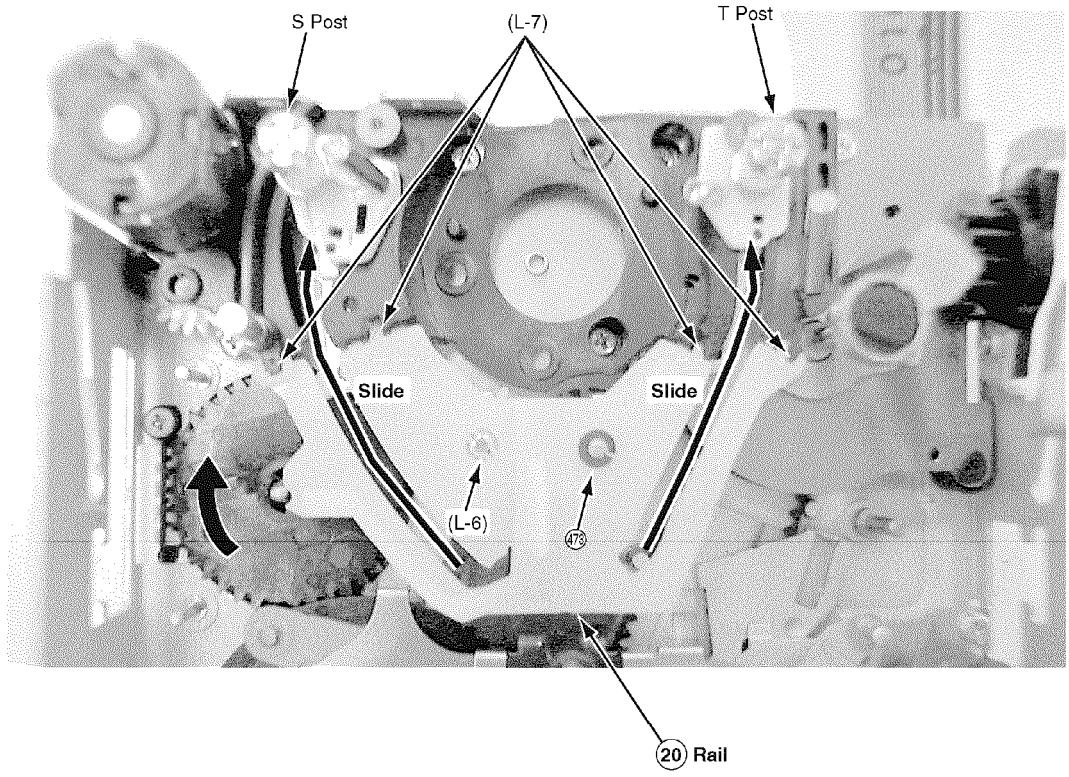
Reassembly Notes:

1. Installation of Pinch Arm Unit

1) Before installing, place the Mechanism in STOP Position by rotating the Mode Switch counterclockwise fully.
2) Install the Pinch Arm Unit so that Pin of Pinch Arm Unit is in Slot and that Pin A is inserted to Hole A on Pinch Arm Unit. (The holes on Pinch Arm Unit are Through Hole.)
3) Hook the Spring to Hooking Portion A, and then to Hooking Portion B of T4 Drive Arm.

7.2.16. Rail

Fig. DM17

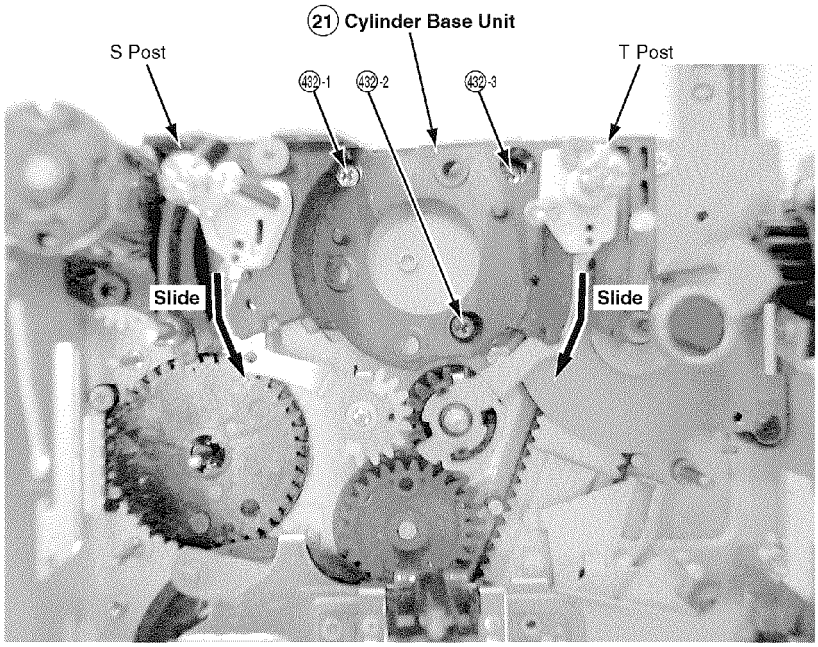


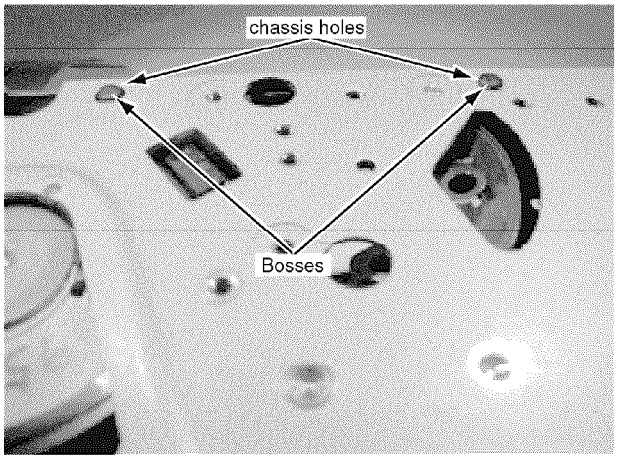
Disassembly Notes:
1. Before removing the Rail, slide the S & T Posts by rotating the Mode Switch clockwise.
2. When removing the Rail, release the Locking Tab (L-6) first so as not to damage the 4 Locking Tabs (L-7).

Reassembly Notes:
1. Installation of Rail
1) Set 4 Locking Tabs (L-7), and then push down the Rail to set Locking Tab (L-6) firmly.

7.2.17. Cylinder Base Unit

Fig. DM18



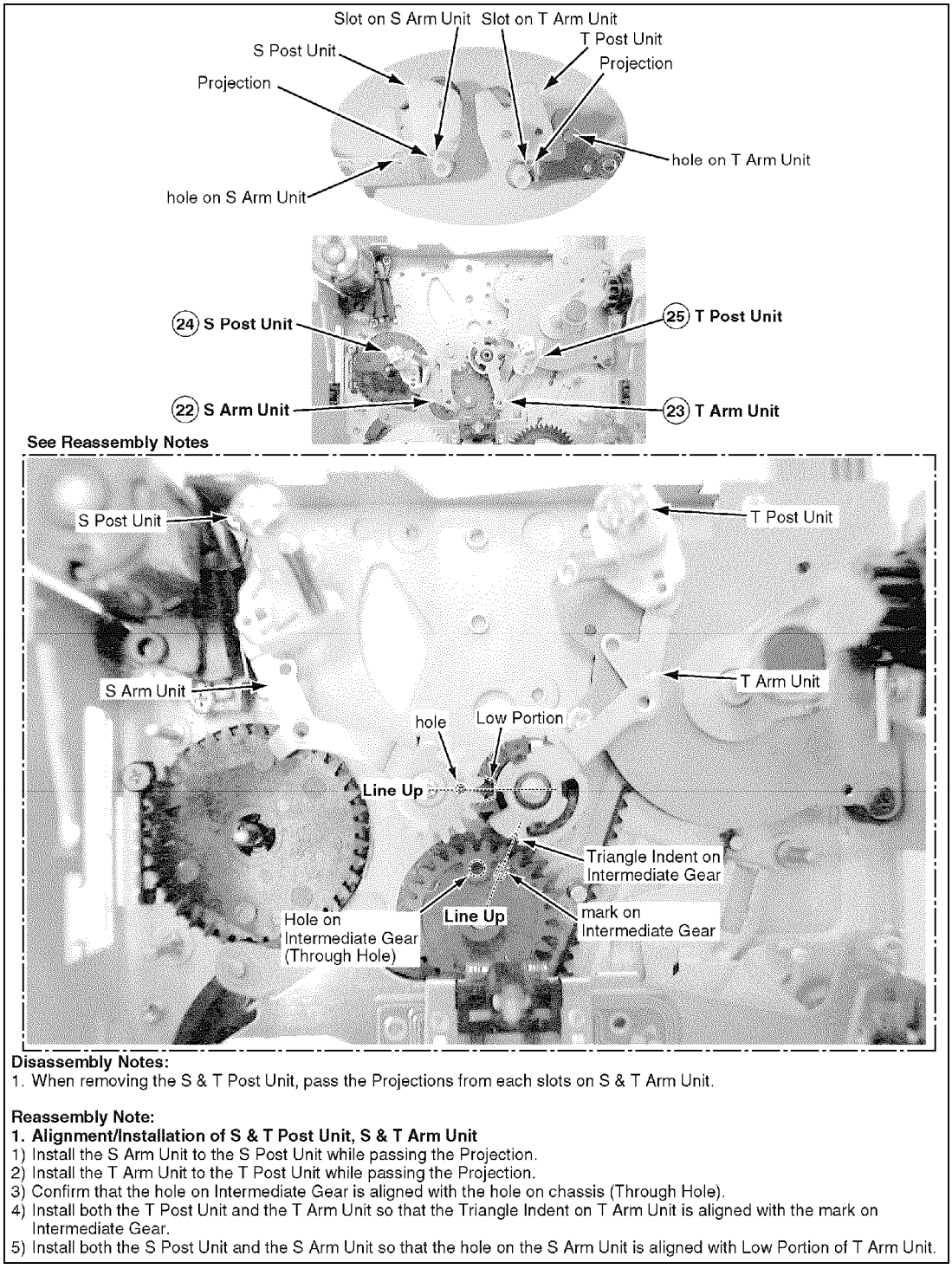


Disassembly Notes:
1. Slide the S & T Posts as indicated by the arrow.

Reassembly Notes:
1. Before installing the Cylinder Base Unit, confirm that the S & T Posts are lowered.
2. When installing, tighten 3 Screws 432-1, 432-2 and 432-3 in order.
3. After installing, slide the S & T Posts to insert the groove of Cylinder Base Unit.

7.2.18. S & T Arm Unit, S & T Post Unit

Fig. DM19



Disassembly Notes:

1. When removing the S & T Post Unit, pass the Projections from each slots on S & T Arm Unit.

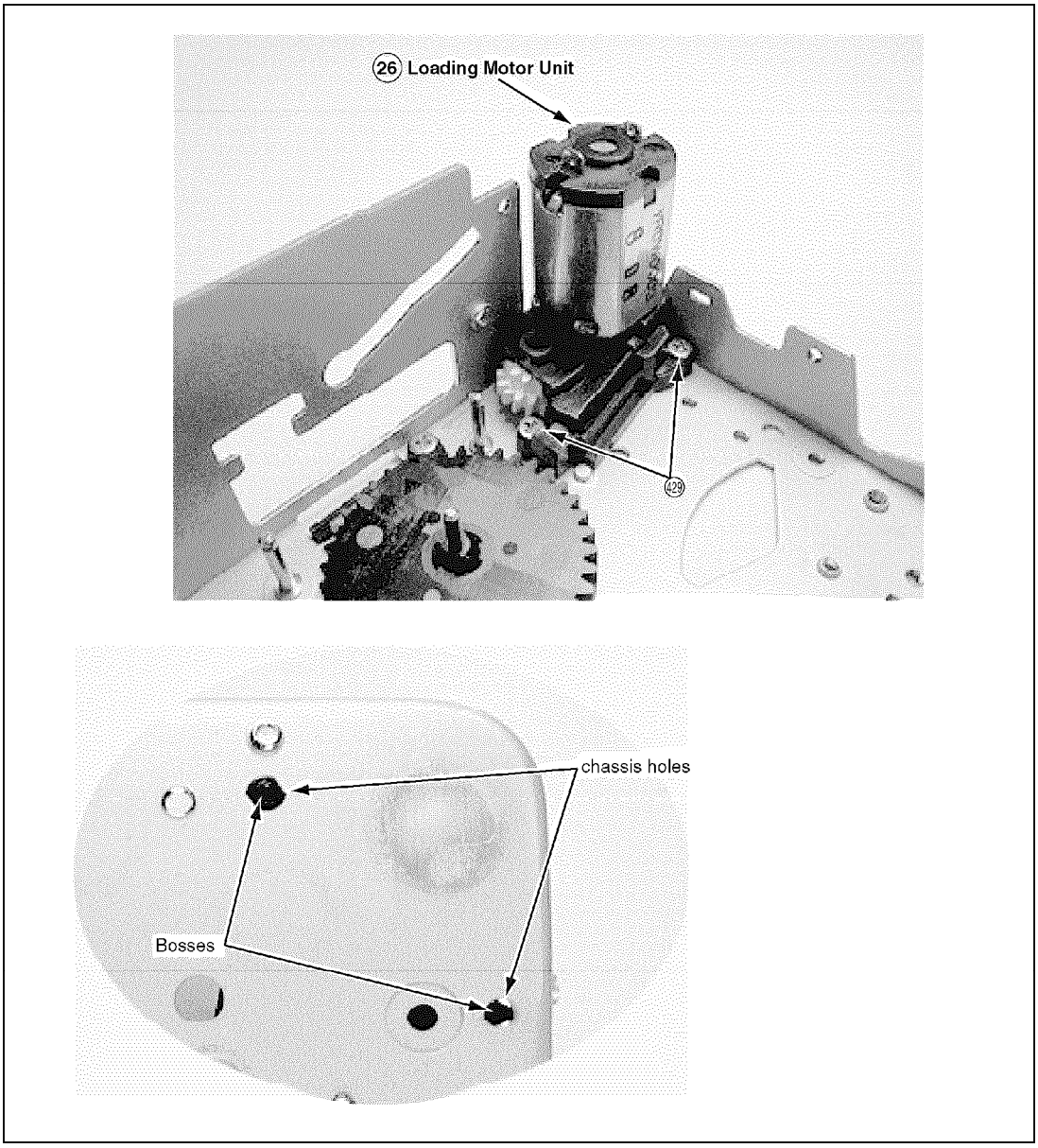
Reassembly Note:

1. Alignment/Installation of S & T Post Unit, S & T Arm Unit

1) Install the S Arm Unit to the S Post Unit while passing the Projection.
2) Install the T Arm Unit to the T Post Unit while passing the Projection.
3) Confirm that the hole on Intermediate Gear is aligned with the hole on chassis (Through Hole).
4) Install both the T Post Unit and the T Arm Unit so that the Triangle Indent on T Arm Unit is aligned with the mark on Intermediate Gear.
5) Install both the S Post Unit and the S Arm Unit so that the hole on the S Arm Unit is aligned with Low Portion of T Arm Unit.

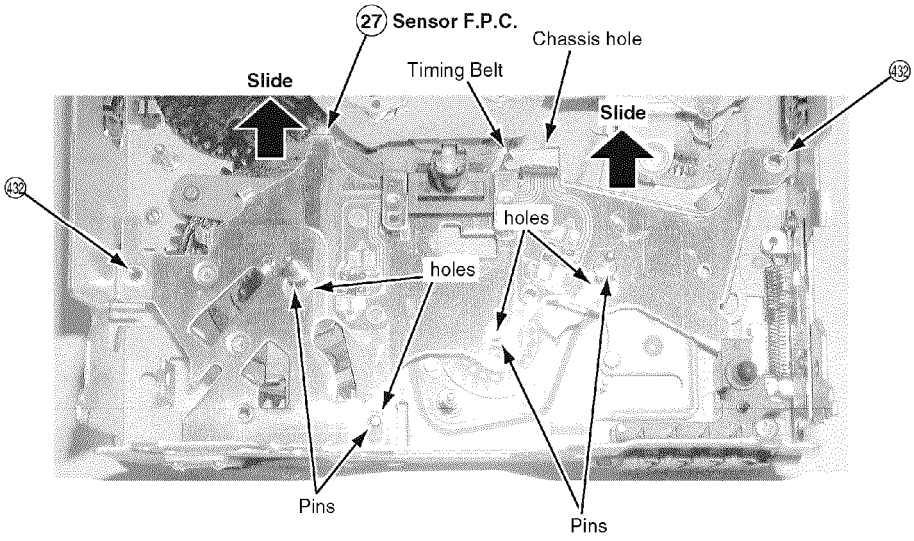
7.2.19. Loading Motor Unit

Fig. DM20



7.2.20. Sensor F.P.C.

Fig. DM21

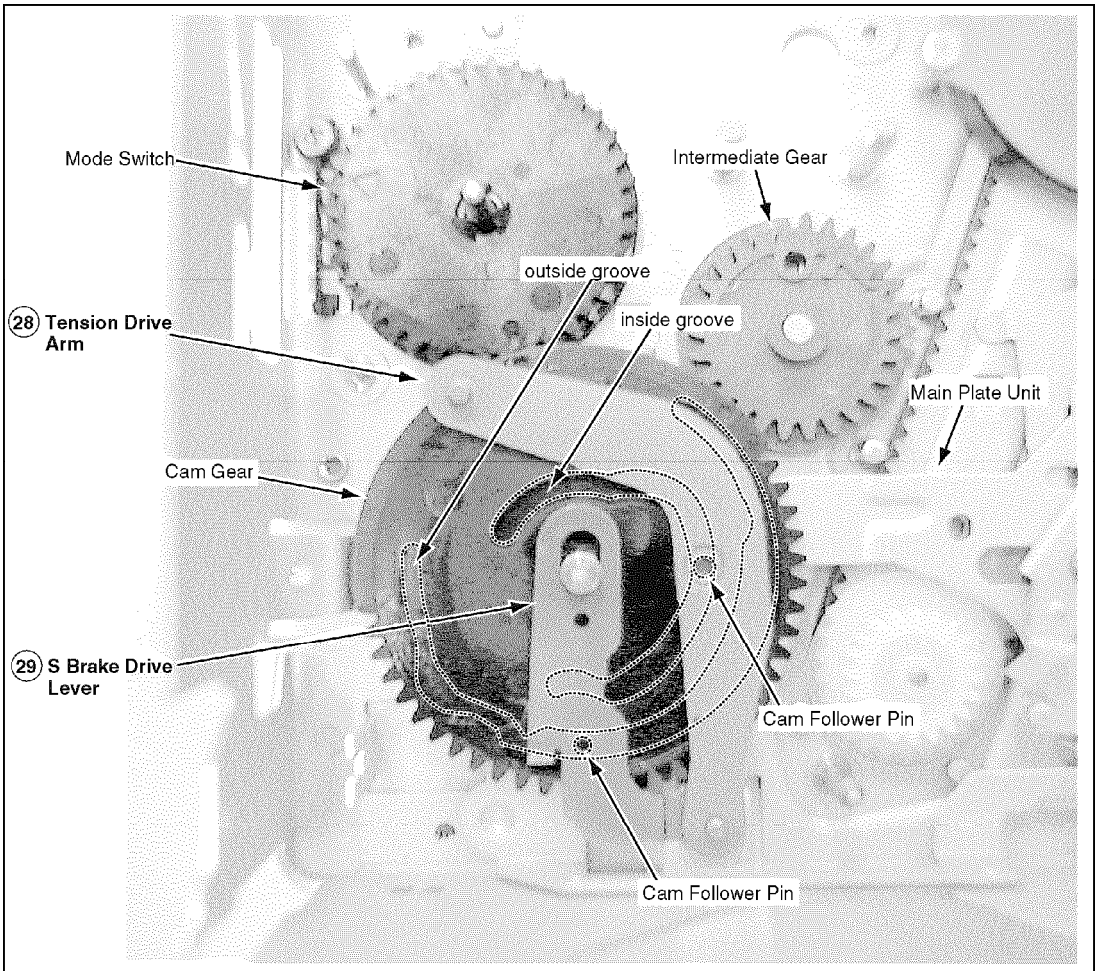


Disassembly Notes:
1. When removing the Sensor F.P.C., slide it as indicated by the arrow.
2. Work carefully so as not to damage the F.P.C. when removing it.

Reassembly Notes:
1. Installation of Sensor F.P.C.
1) Install the Sensor F.P.C. so that the Pins on chassis are in the holes on the Sensor F.P.C.
2) Slide the Sensor F.P.C., and then tighten 2 Screws (432).
3) Put the F.P.C. through the Chassis hole, and confirm that there is no contact between the Timing Belt and the F.P.C.

7.2.21. Tension Drive Arm, S Brake Drive Lever

Fig. DM22



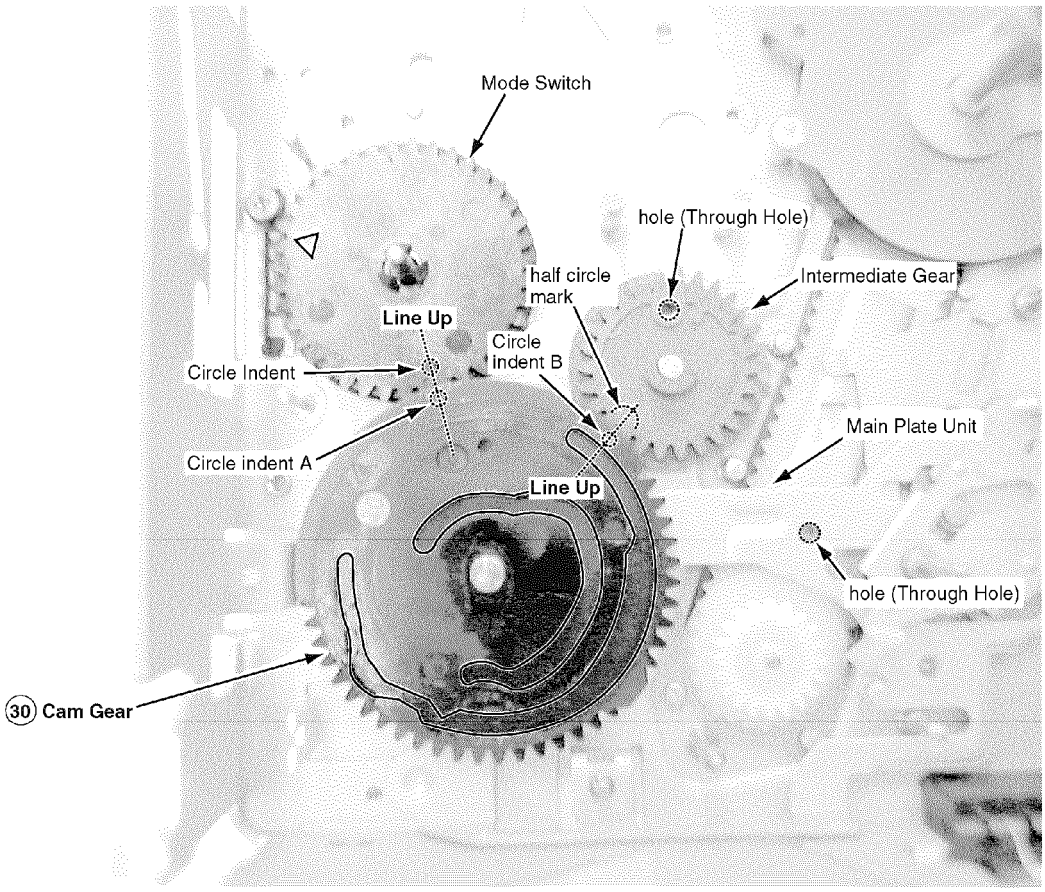
Reassembly Notes:

1. Installation of S Brake Drive Lever, Tension Drive Arm

1) Confirm that the Intermediate Gear, Main Plate Unit, Mode Switch, and Cam Gear are in proper position. Refer to "Cam Gear."
2) Install the S Brake Drive Lever so that the Cam Follower Pin on S Brake Drive Lever is inserted to outside groove on the Cam Gear.
3) Install the Tension Drive Arm so that the Cam Follower Pin on Tension Drive Arm is inserted to inside groove on the Cam Gear.

7.2.22. Cam Gear

Fig. DM23



Reassembly Notes:

1. Alignment of Intermediate Gear, Main Plate Unit, Mode Switch, Cam Gear

1) Before installing the Cam Gear, align the hole on Intermediate Gear with hole on chassis (Through Hole), and then, align the hole on the Main Plate Unit with hole on chassis (Through Hole).
2) Install the Cam Gear so that Circle indent A on Cam Gear is aligned with Circle Indent on Mode Switch, and the Circle indent B on Cam Gear is aligned with half circle mark on Intermediate Gear.

7.2.23. Pinch Drive Arm, Intermediate Gear

Fig. DM24

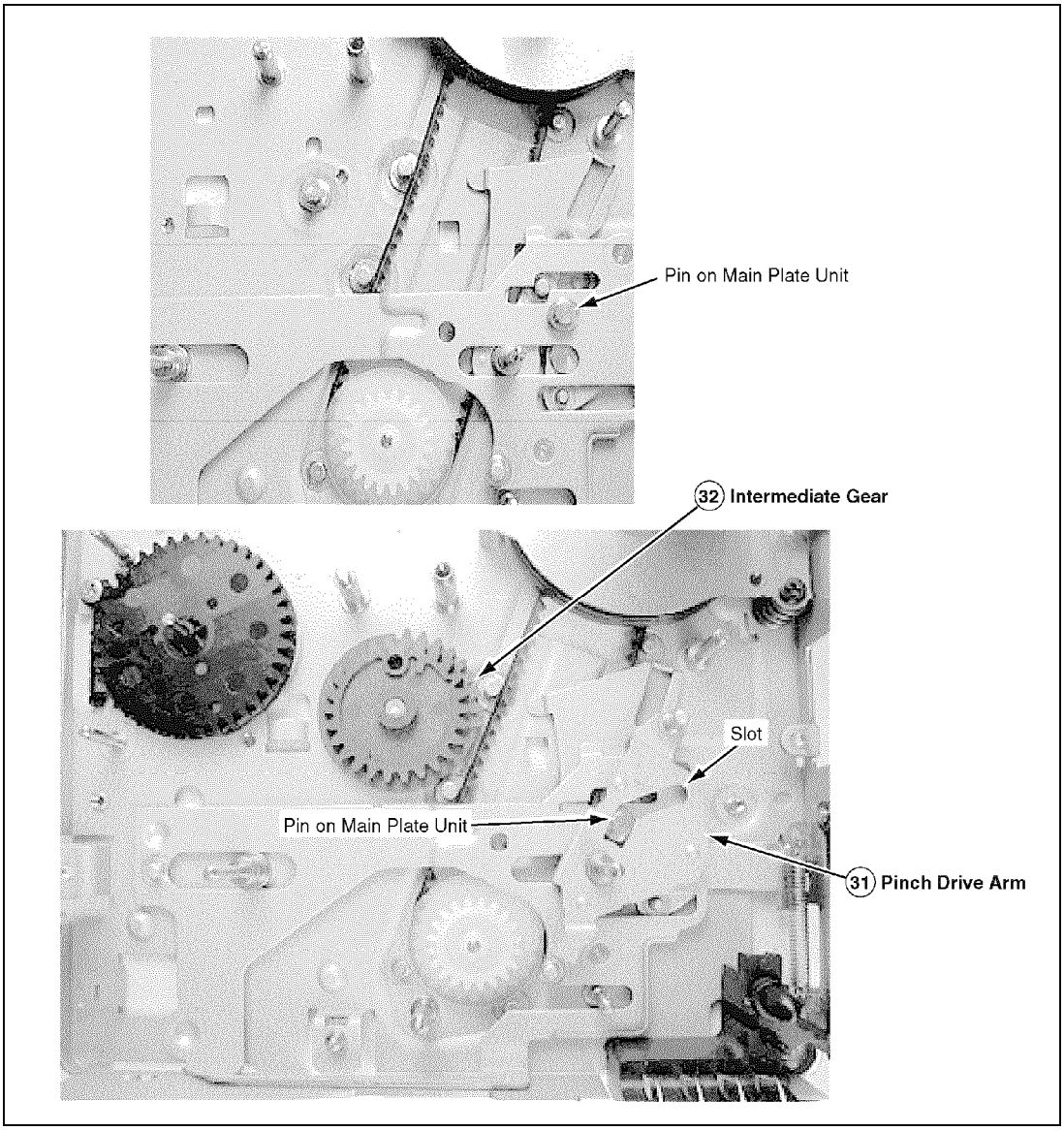
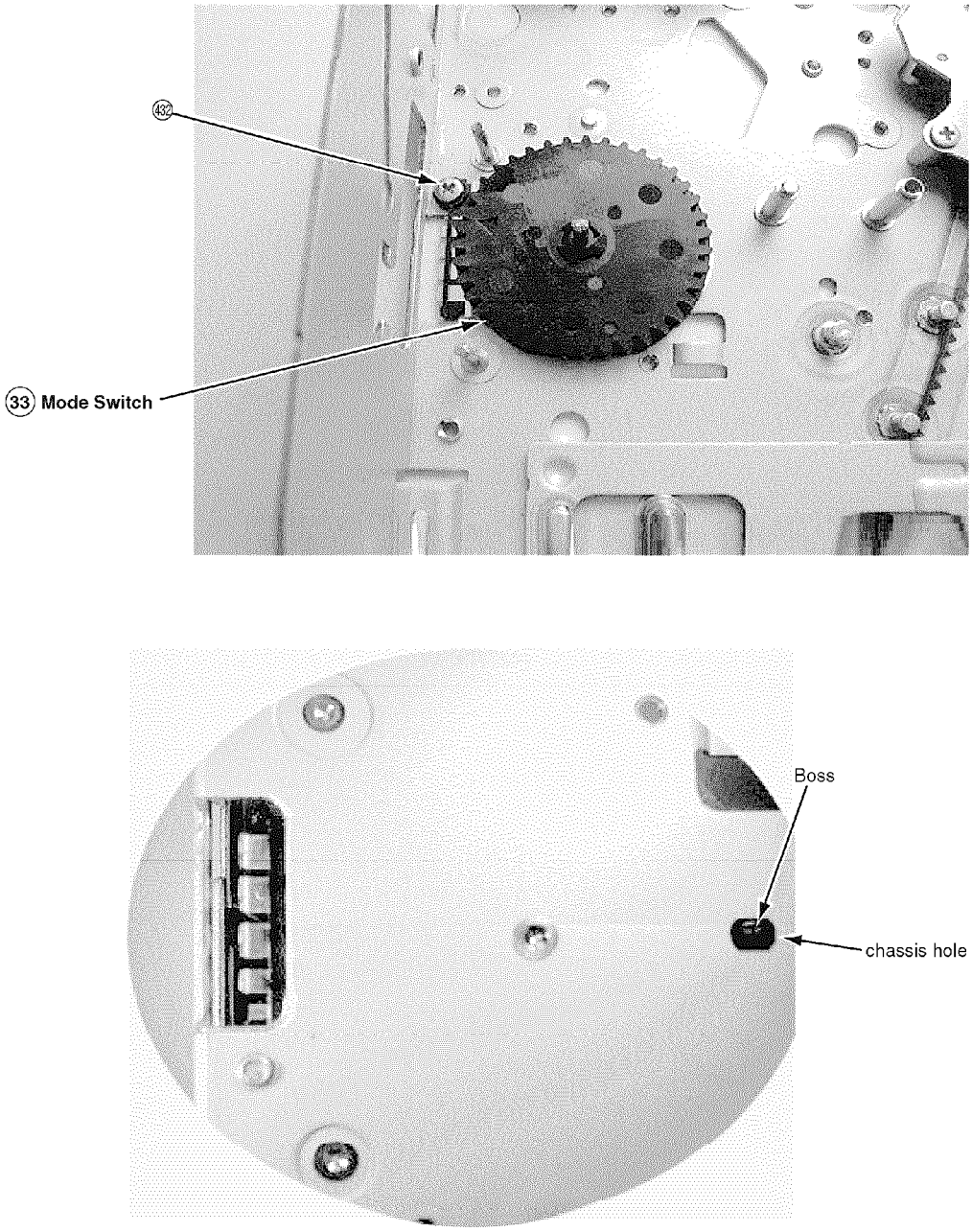


Fig. DM25

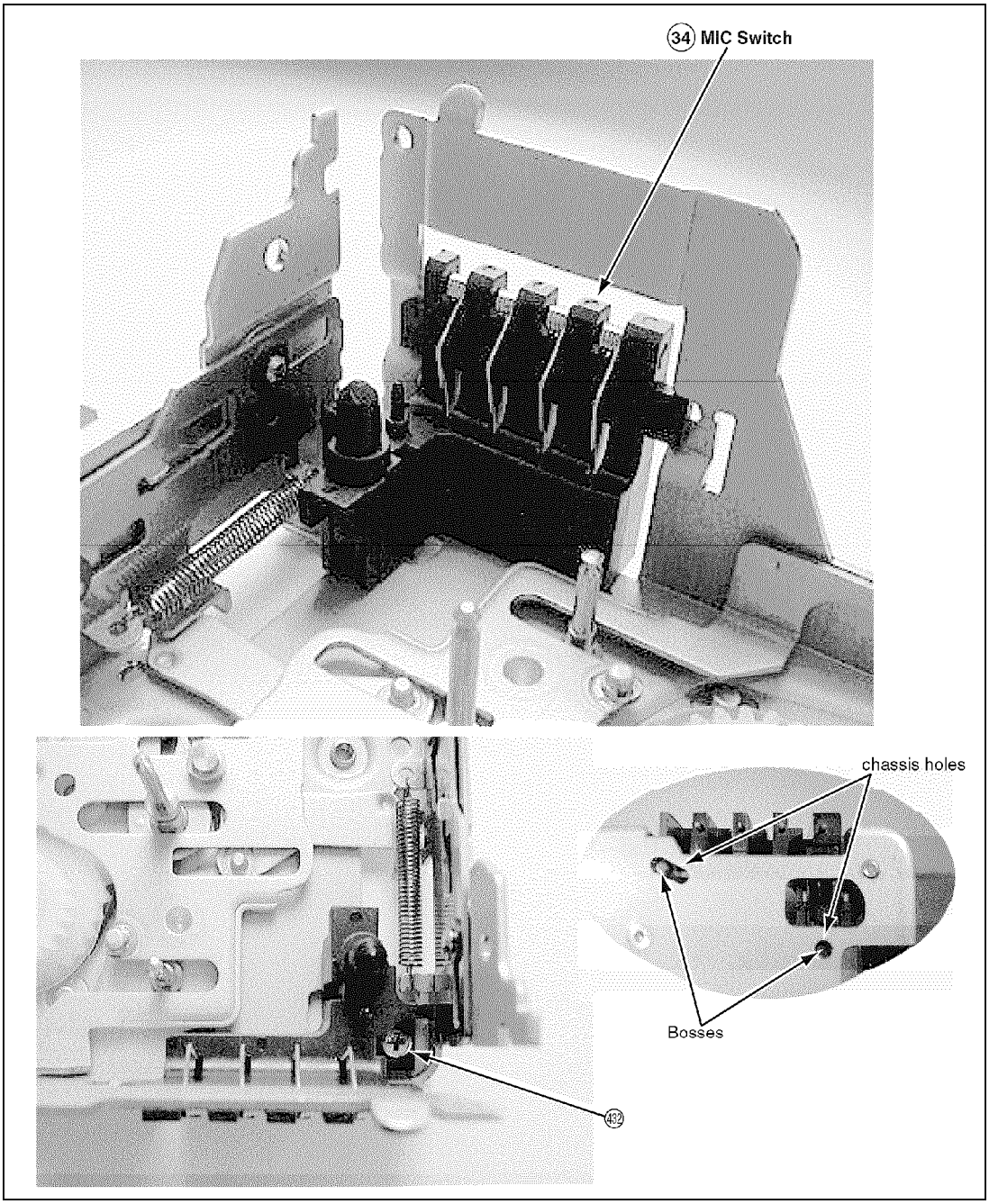
7.2.24. Mode Switch



Reassembly Notes:
1. When installing the Mode Switch, install the Mode Switch without tottering

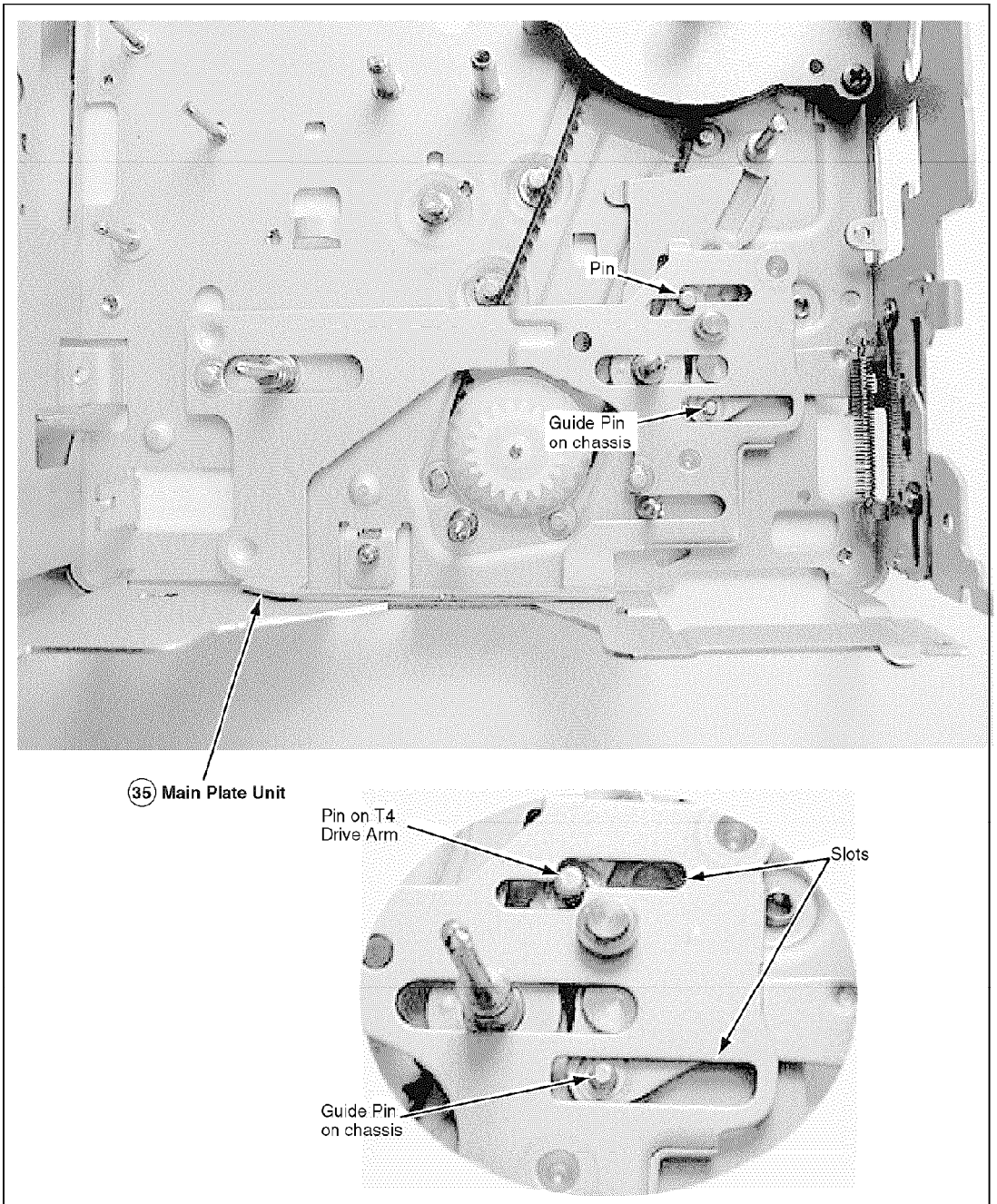
7.2.25. MIC Switch

Fig. DM26



7.2.26. Main Plate Unit

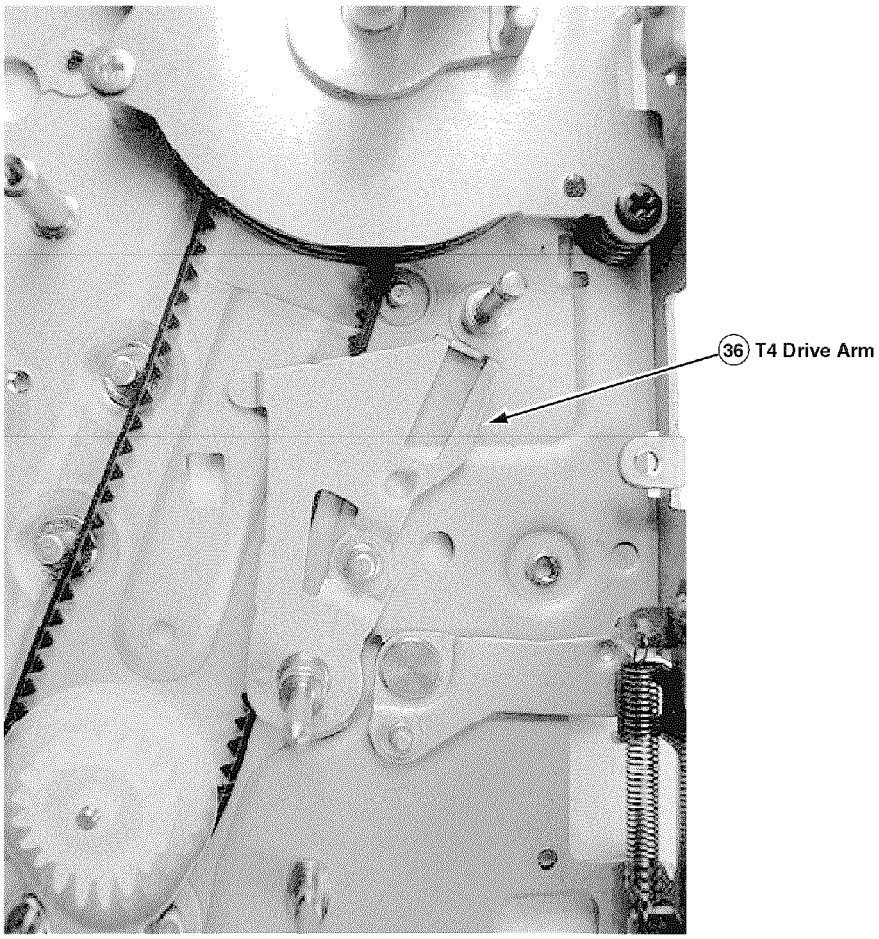
Fig. DM27



Reassembly Notes:
1. Installation of Main Plate Unit
1) Install the Main Plate Unit so that Pin on T4 Drive Arm and Guide Pin on chassis are in Slots on Main Plate Unit correctly.

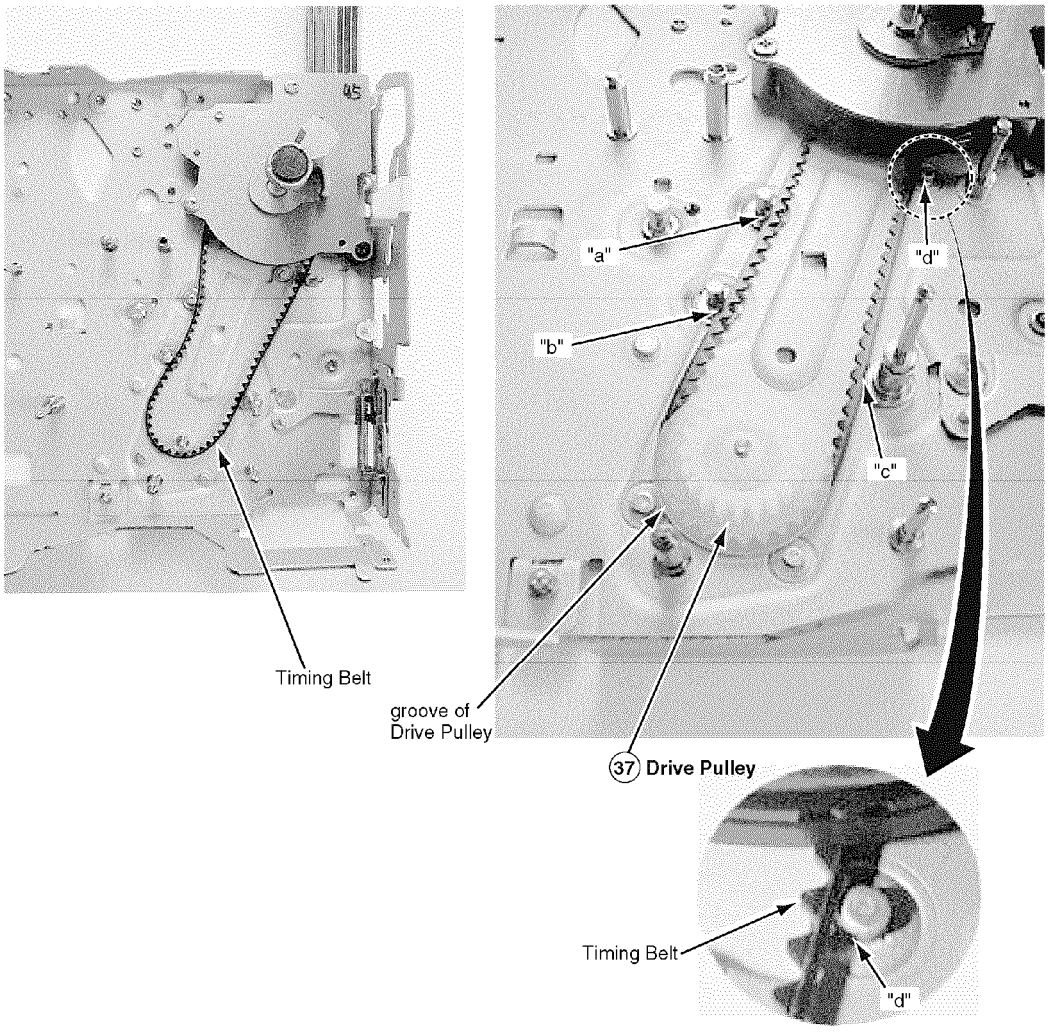
7.2.27. T4 Drive Arm

Fig. DM28



7.2.28. Drive Pulley

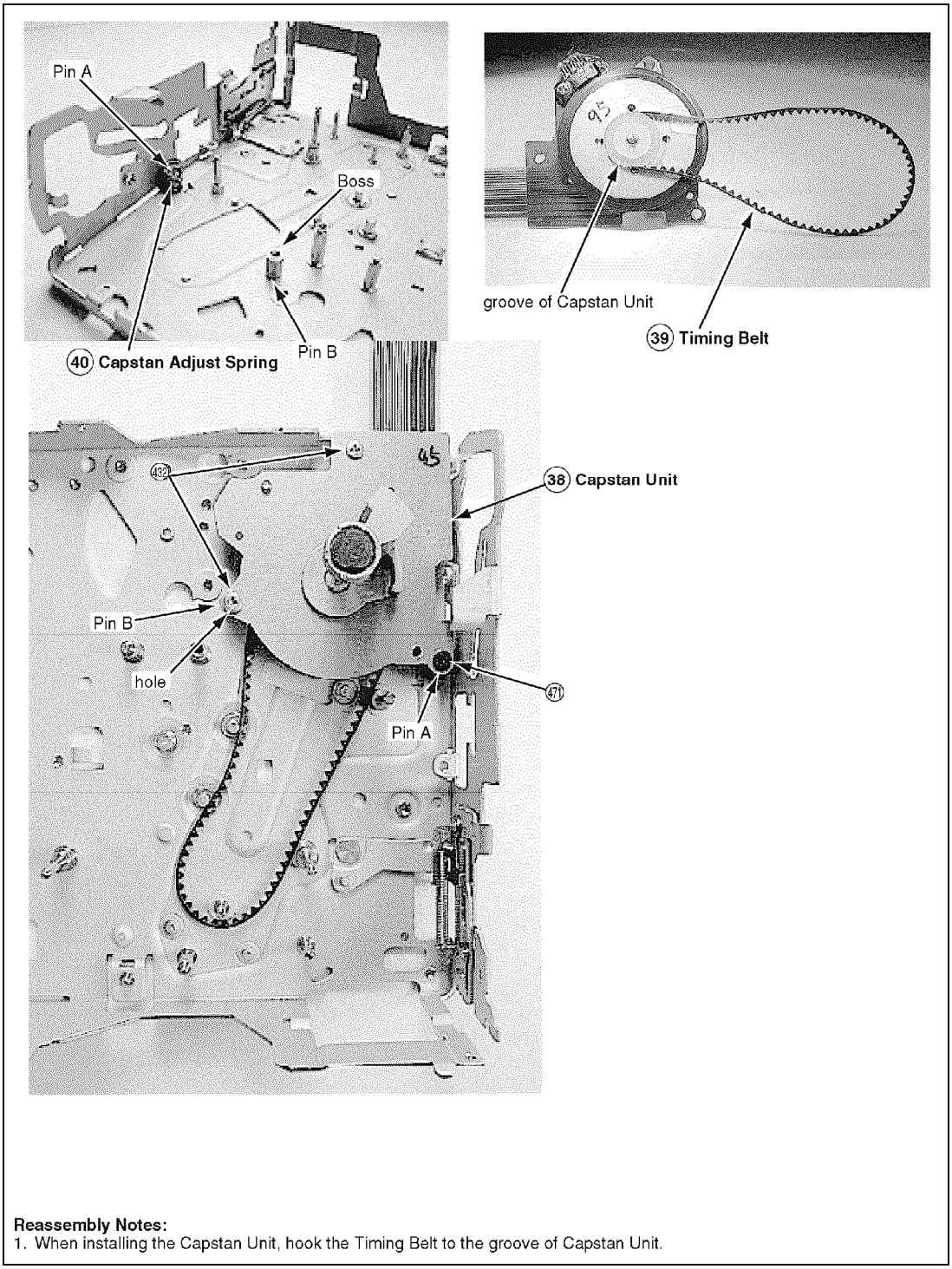
Fig. DM29



Reassembly Notes:
1. DO NOT let the Timing Belt twist.
   Be careful so as not to let the Timing Belt touch the greased portion.
2. When installing the Drive Pulley, confirm that the Timing Belt is in correct position as shown.
3. After installing the Drive Pulley, confirm that Drive Pulley and Capstan Rotor can rotate smoothly.

7.2.29. Capstan Unit, Timing Belt, Capstan Adjust Spring

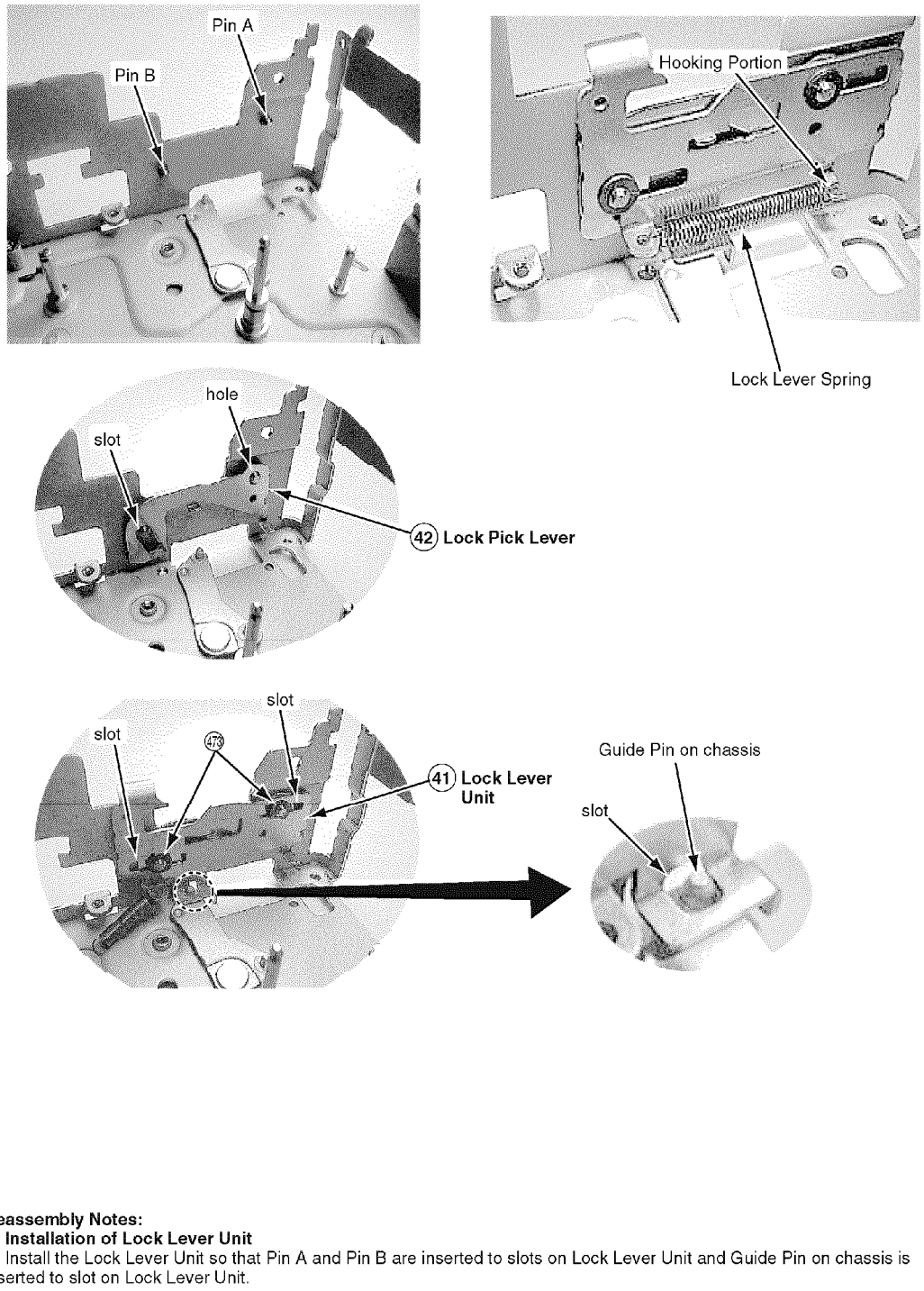
Fig. DM30



Reassembly Notes:
1. When installing the Capstan Unit, hook the Timing Belt to the groove of Capstan Unit.

7.2.30. Lock Lever Unit, Lock Pick Lever

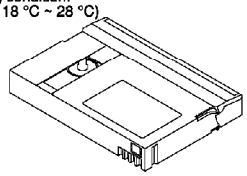
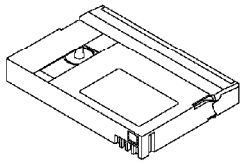
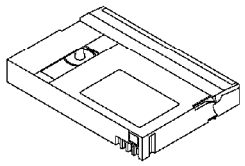
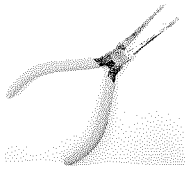
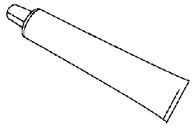
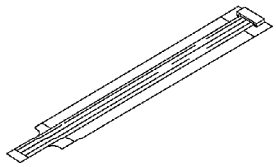
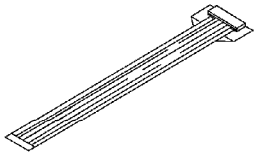
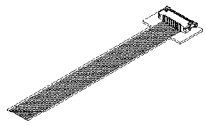
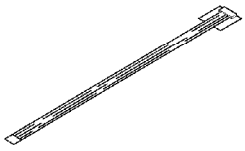
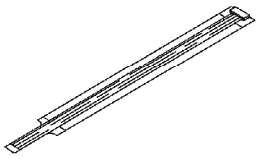
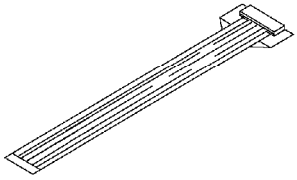
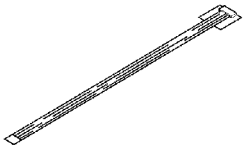
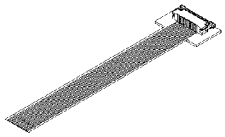
Fig. DM31



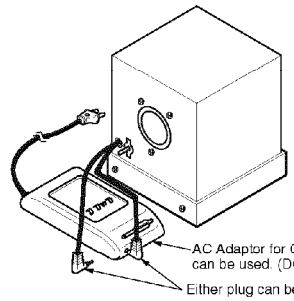
Reassembly Notes:
1. Installation of Lock Lever Unit
1) Install the Lock Lever Unit so that Pin A and Pin B are inserted to slots on Lock Lever Unit and Guide Pin on chassis is inserted to slot on Lock Lever Unit.

8. ADJUSTMENT PROCEDURES

8.1. SERVICE FIXTURES & TOOLS

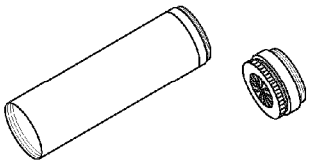
Color Bar Standard Tape VFM3010EDS (Keeping condition: Keep at 18 °C ~ 28 °C) 	Tape Path Alignment Tape LSVQ0041 	DVC Head Cleaning Tape VFK1451 
Plier for Non ZIF Connector LSVQ0028 	Capstan Tilt Adjustment Tool LSVQ0020 	Grease LSUQ0002 
Extension Cable 14P VFKW0124A 	Extension Cable 22P VUVS0012 	Extension Cable 18P LSUA0017 
Extension Cable 10P LSUA0016 	Extension Cable 12P VUVS0007 	Extension Cable 28P VUVS0015 
Extension Cable 11P LSUA0030 	Extension Cable 20P LSUA0020 	Grease VFKS0081

Light Box VFK1164LBX1
and AC Adaptor



(AC Adaptor is not supplied)

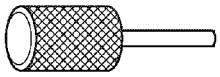
Infinity Lens VFK1164TCM02
(with Focus Chart)



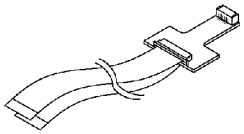
43mm Ring VFK1164TAR43

Color Conversion Filter (C14) VFK1164TFCT2

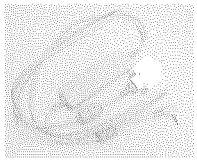
Post Height Adjustment Fixture LSVQ0021



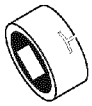
Camera Connecting Cable LSUP0017



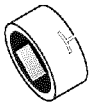
232C(M3) I/F Cable VFK1395



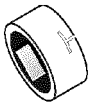
White Chart VFK1164TFWC2



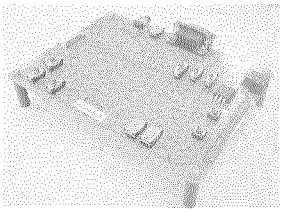
Color Bar Chart VFK1164TFCB2



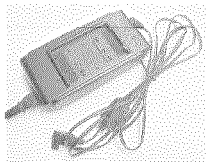
Gray Scale Chart VFK1164TFGS2



Measuring Board for Electrical Adjustment VFK1308E



DC Output Cable VJA0941
and AC Adaptor



(AC Adaptor is not supplied)

8.2. MECHANICAL ADJUSTMENT

8.2.1. Comparison between adjustment items and replacement parts

Replacement Parts / Adjustment Items	TENSION ARM UNIT	CAPSTAN UNIT	PINCH ARM UNIT	CYLINDER UNIT	CYLINDER BASE UNIT	S POST UNIT	T POST UNIT	MECHANISM CHASSIS ASS'Y
TENSION POST ADJUSTMENT	○							
CAPSTAN TILT ADJUSTMENT		○						
T4 POST HEIGHT CONFIRMATION			○					
ENVELOPE OUTPUT ADJUSTMENT				○	○	○	○	○

8.2.2. TENSION POST ADJUSTMENT

Purpose:

To maintain a constant tape tension so that the tape runs with stability.

Symptom of Misadjustment:

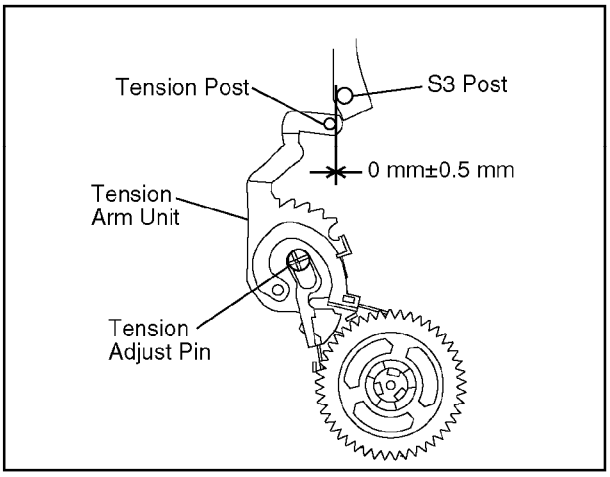
1. **If the adjusted value is below the specification, the tape tension is not sufficient, thus causing a tape slack.**
2. **If the adjusted value is above the specification, the tape tension is too high, thus causing tape damage.**

Equipment Required:

Flat Headed (-) Screwdriver (Purchase Locally)

1. **Without cassette tape, place the Mechanism in the PLAY Position (the Tension Post goes to the most left side) by applying DC Power Supply (3 V) to the Loading Motor terminal.**
2. **Confirm that there is a space of 0 mm±0.5 mm between the right edge of the Tension Post and the left edge of the S3 Post. If not, with Flat Headed (-) Screwdriver, adjust the Tension Adjust Pin so that the space of 0 mm±0.5 mm is made.**

Fig. T1



8.2.3. CAPSTAN TILT ADJUSTMENT

Purpose:

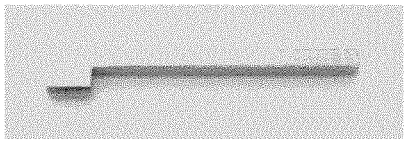
To adjust the tilt of the Capstan Shaft properly.

Symptom of Misadjustment:

If the tilt of the Capstan Shaft is poorly adjusted, the tape might be damaged.

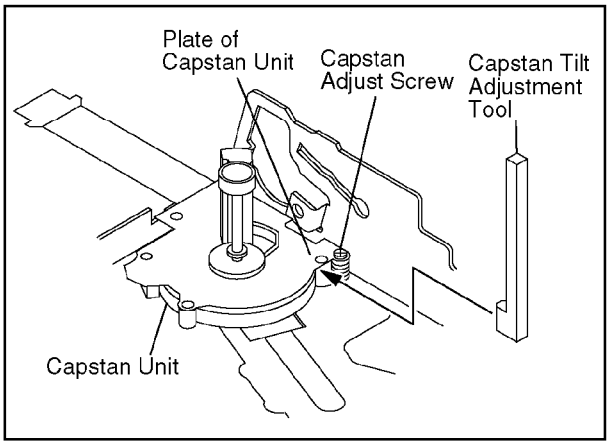
Equipment Required:

Capstan Tilt Adjustment Tool (LSVQ0020)



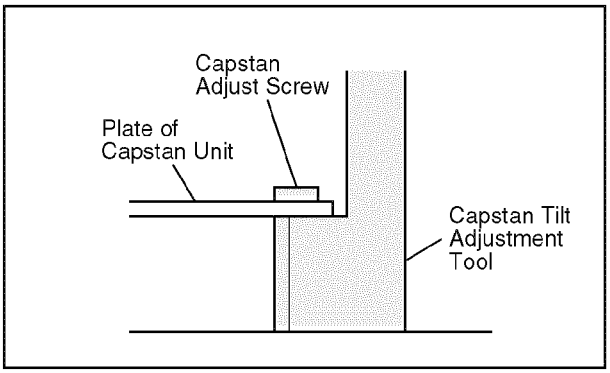
1. Set the Capstan Tilt Adjustment Tool between Capstan Unit and Chassis.

Fig. T2-1



2. Tighten the Capstan Adjust Screw so that the plate of Capstan Unit just touches to the Capstan Tilt Adjustment Tool.

Fig. T2-2



8.2.4. T4 POST HEIGHT CONFIRMATION

Purpose:

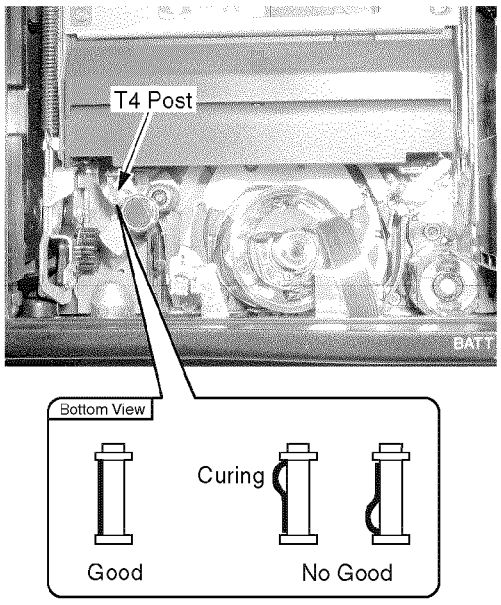
To confirm so that the height of the T4 Post is proper.

Symptom:

If the height of the T4 Post is incorrect, the tape might be damaged.

1. **To remove the Cassette Cover, refer to "Disassembly Method" of CABINET SECTION in DISASSEMBLY/ASSEMBLY PROCEDURES.**
2. **Insert the tape without the Cassette Cover.**
3. **Confirm that the tape travels without curing at T4 post in both PLAY and REVIEW modes. If curing is apparent, replace the Pinch Arm Unit.**

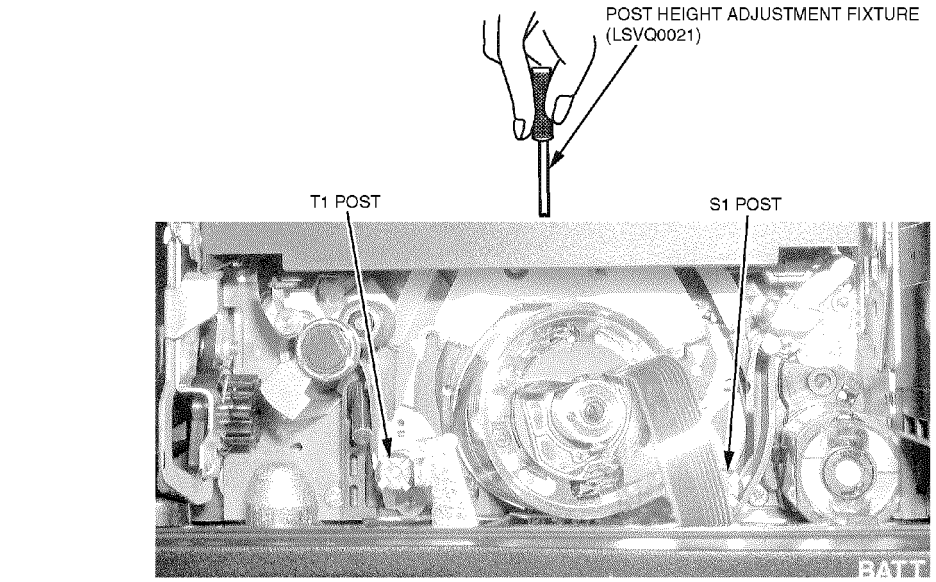
Fig. T3-2

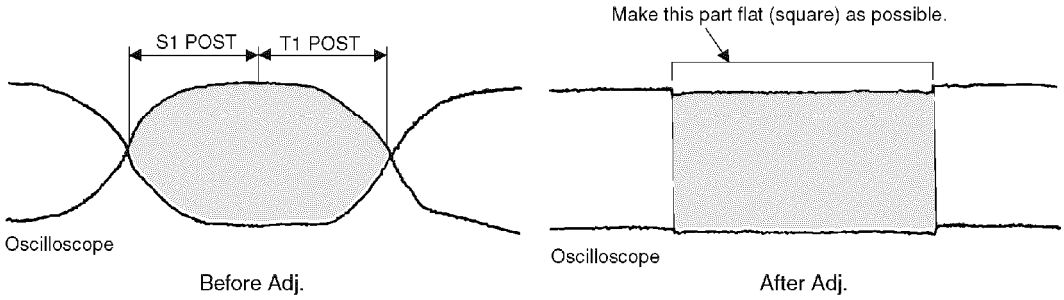


8.2.5. ENVELOPE OUTPUT ADJUSTMENT

1. **Connect the Camcorder and the Measuring Board with Camera Connecting Cable.**
2. **Connect the oscilloscope to "Envelope TP" on the Measuring Board.**

3. Playback the Tape Path Alignment Tape (LSVQ0041).
4. Adjust the S1 post by turning the top of post with Post Height Adjustment Fixture (LSVQ0021) so that the left half of envelope signal becomes flat as possible.
5. Adjust the T1 post by turning the top of post with Post Height Adjustment Fixture (LSVQ0021) so that the right half of envelope signal becomes flat as possible.





Note:
After the adjustment, be sure to confirm BER (Bit Error Ratio) using EVR Adjustment Software. If it is NG, try this adjustment once again.

8.3. ELECTRICAL ADJUSTMENT

8.3.1. INITIAL GUIDELINE

The table below shows which adjustments are necessary according to the unit parts and individual parts to be replaced. Make sure to perform these adjustments shown below as necessary.

Adjustment Item	Replacement Parts	MAIN C.B.A.	IC301 (CAMERA SIGNAL PROCESS)	IC703 (IRIS DRIVE)	IC901(EVF SIGNAL PROCESS)	IC3001 (CAMERA DIGITAL SIGNAL PROCESS/SHUFFLING)	IC3002 (VIDEO/AUDIO SIGNAL PROCESS)	IC6007 (EEPROM)	IC6009 (DAC)	LCD C.B.A.	IC8001(LCD RGB SIGNAL PROCESS)	CCD UNIT	LENS UNIT	LCD UNIT	CYLINDER UNIT
VIDEO	Sensitivity Adjustment of Tape sensors	○						○							
	PG shifter Adjustment	○						○							○
	Luminance Level Adjustment	○				○	○	○							
	Color Level Adjustment	○				○	○	○							
Camera	Hall Amp Adjustment	○		○				○	○				○		
	Pixel Error Interpolation Adjustment for CCD	○						○				○			
	Zoom tracking Adjustment	○						○					○		
	Iris PWM Adjustment	○		○				○	○				○		
	White Balance Adjustment	○	○			○		○				○			
LCD	PLL Adjustment	○						○		○	○			○	
	Pedestal Level Adjustment	○						○		○	○			○	
	RB Sub Pedestal Level Adjustment	○						○		○	○			○	
	COM Level Adjustment	○						○		○	○			○	
	White Balance Adjustment	○						○		○	○			○	
Color EVF	PLL Adjustment	○			○			○							
	Pedestal Level Adjustment	○			○			○							
	RB Sub Pedestal Level Adjustment	○			○			○							
	White Balance Adjustment	○			○			○							

Note: ○ : Adjustment Item

8.3.2. TEST EQUIPMENT

1. Dual-Trace Oscilloscope
- **Voltage Range: 0.001 to 50 V/Div.**
- **Frequency Range: DC to 50 MHz**
- **Probes: 10:1, 1:1**

2. Frequency Counter

3. Vectorscope

4. Plastic Tip Driver

5. Personal Computer
- **PC: IBM PC/AT or compatible**
- **OS: MS-DOS or MS-Windows**
- **CPU: 486 or higher**
- **Drive: 3.5 inch 1.44 MB floppy disk drive**
- **Port: D-Sub-9-pin Serial or D-Sub-25-pin Serial**
- **Monitor: VGA Color**

6. PC-EVR Adjustment Program (VF2D2002DV10)

Note:

Ask latest version when placing order for PC-EVR Adjustment program.

7. Measuring Board (VFK1308E)

8. 232C (M3) I/F Cable (VFK1395)

9. Camera Connecting Cable (LSUP0017)

10. DC Output Cable and AC Adaptor (VJA0941)

11. Color Bar Standard Tape (VFM3010EDS)
(Keeping condition: Keep at 18 °C ~ 28 °C)

12. Gray Scale Chart (VFK1164TFGS2)

13. White Chart (VFK1164TFWC2)

14. Color Bar Chart (VFK1164TFCB2)

15. Light Box and AC Adaptor (for VHS-C)

16. Infinity Lens (with Focus Chart) (VFK1164TCM02)

17. AC Adaptor (for DVC)

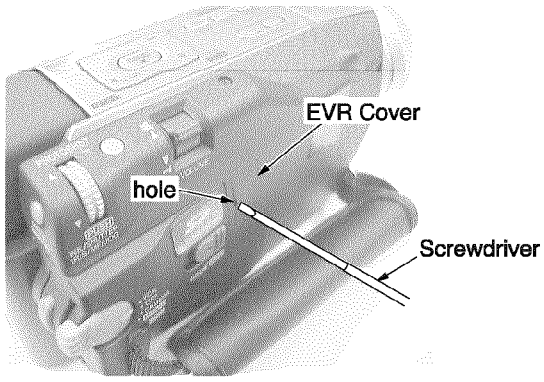
18. 43 mm Ring (VFK1164TAR43)

19. Color Conversion Filter (C14) (VFK1164TFCT2)

8.3.3. PREPARATION

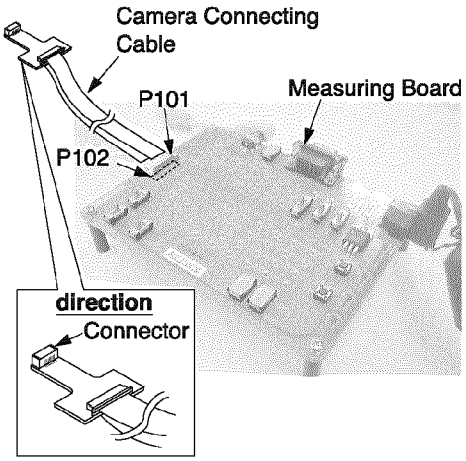
1. Insert a flat headed (-) Screwdriver or similar object into the hole, remove the EVR Cover.

Fig. E1-1



2. Connect the Camera Connecting Cable to P101 and P102 on the Measuring Board.

Fig. E1-2

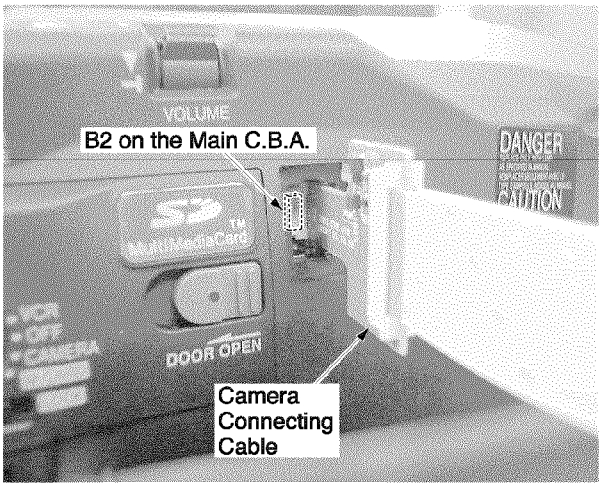


Note:

Install Camera Connecting Cable so that the Connector is upward as shown.

3. **Connect the Camera Connecting Cable to the Connector B2 on the Main C.B.A.**

Fig. E1-3



4. **Connect the AC Adaptor to the unit.**
5. **Connect the DC Output Cable (and AC Adaptor) to the J101 on the Measuring Board.**
6. **Connect the J102 on the Measuring Board to RS232C of the PC with 232C (M3) I/F Cable.**
7. **Set the SW101 (RS232C SEL) on the Interface Board to "M3."**
8. **Set the SW102 (FLUSH1) on the Interface Board to "NORMAL."**
9. **Set the SW103 (VTR TEST) on the Interface Board to "L."**
10. **Set the SW104 (BST TEST) on the Interface Board to "NORMAL."**
11. **Set the SW105 on the Interface Board to "L."**

12. Set the SW106 on the Interface Board to "ON."

13. Set the SW107 on the Interface Board to center.

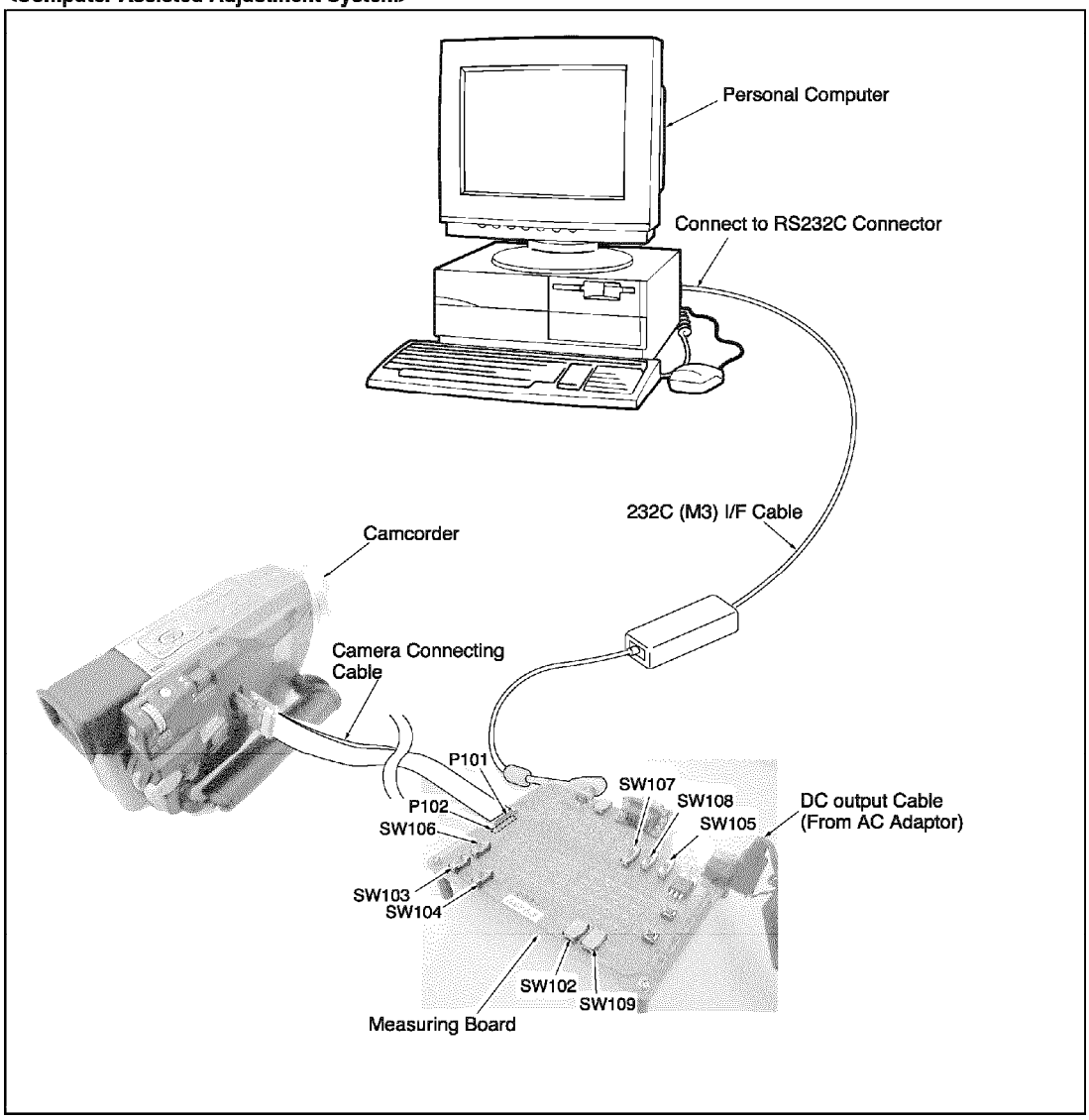
14. Set the SW108 on the Interface Board to "L."

15. Set the SW109 (FLUSH2) on the Measuring Board to "FLUSH."

16. Power on the unit.

Fig. E1-4

<Computer Assisted Adjustment System>



8.3.4. SET UP OF PC-EVR ADJUSTMENT PROGRAM

1. Turn on the Personal Computer.
MS-Windows will be set up automatically.

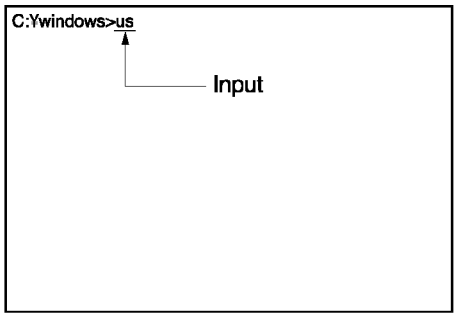
2. Restart it in MS-DOS mode.

3. Change the current directory to the one including the PC-EVR Adjustment Program and start up the PC-EVR Adjustment Program as

follows.

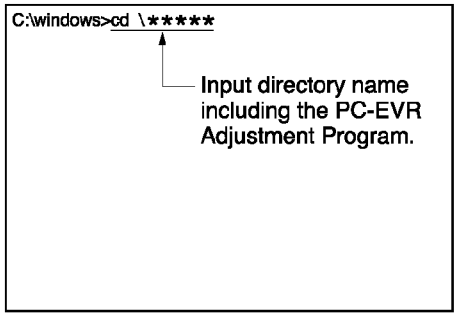
A. If MS-DOS is Japanese mode, input "us," and then press "ENTER" key to be US mode on.

Fig. E2-1



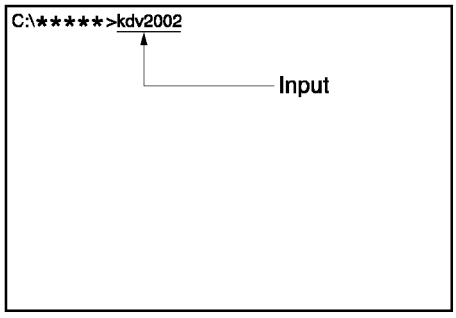
B. Input "cd *****," and then press "ENTER" key to change the directory to the one including the PC-EVR Adjustment Program.

Fig. E2-2



C. Input "kdv2002," and then press "ENTER" key to start up the PC-EVR Adjustment Program.

Fig. E2-3



"Select Model Number Menu" will be displayed.

4. Select the model number which you are servicing, and then press "Enter" key. The starting display will be displayed.
5. Perform set up items according to menu until "Main Menu" is displayed.

8.3.5. HOW TO USE MAIN MENU

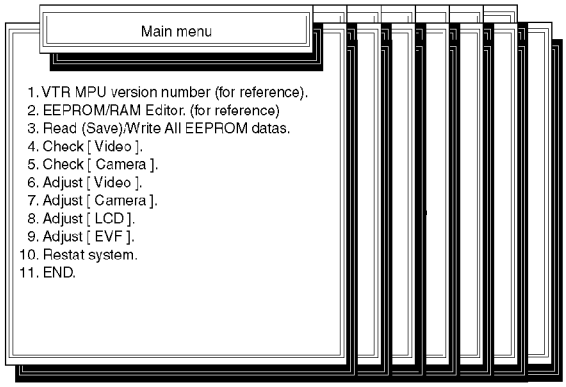
8.3.5.1. Main Menu

Select a Sub Menu to check, adjust the unit. by pressing (UP/DOWN) Key in Main Menu. Then, press "ENTER" Key. The Sub Menu will be displayed.

Note:

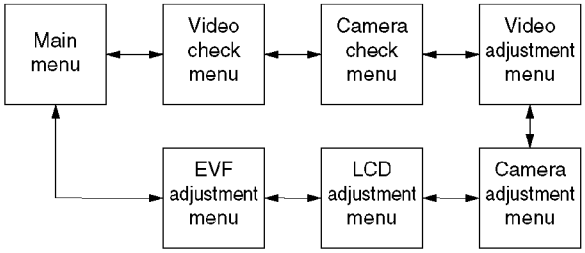
Menu 6 through 9 are needed for adjustment.

Fig. E3-1


Main menu
1. VTR MPU version number (for reference).
2. EEPROM/RAM Editor. (for reference)
3. Read (Save)/Write All EEPROM datas.
4. Check [Video].
5. Check [Camera].
6. Adjust [Video].
7. Adjust [Camera].
8. Adjust [LCD].
9. Adjust [EVF].
10. Restat system.
11. END.

With using key, you can also see sub menu in order.

Fig. E3-2



Note:

The adjusted data is stored to EEPROM IC after each adjustment.

9. SCHEMATIC DIAGRAMS

9.1. SCHEMATIC DIAGRAM & CIRCUIT BOARD LAYOUT NOTES

9.2. REAR SCHEMATIC DIAGRAM

9.3. MICROPHONE/FRONT/EVF BACKLIGHT SCHEMATIC DIAGRAMS

9.4. LCD SCHEMATIC DIAGRAM

9.5. INTERCONNECTION SCHEMATIC DIAGRAM

9.6. VOLTAGE CHART

10. CIRCUIT BOARD LAYOUT

10.1. REAR C.B.A.

10.2. MICROPHONE/FRONT/EVF BACKLIGHT C.B.A.
10.3. LCD C.B.A.
11. BLOCK DIAGRAMS
12. EXPLODED VIEWS
12.1. MAIN PARTS SECTION

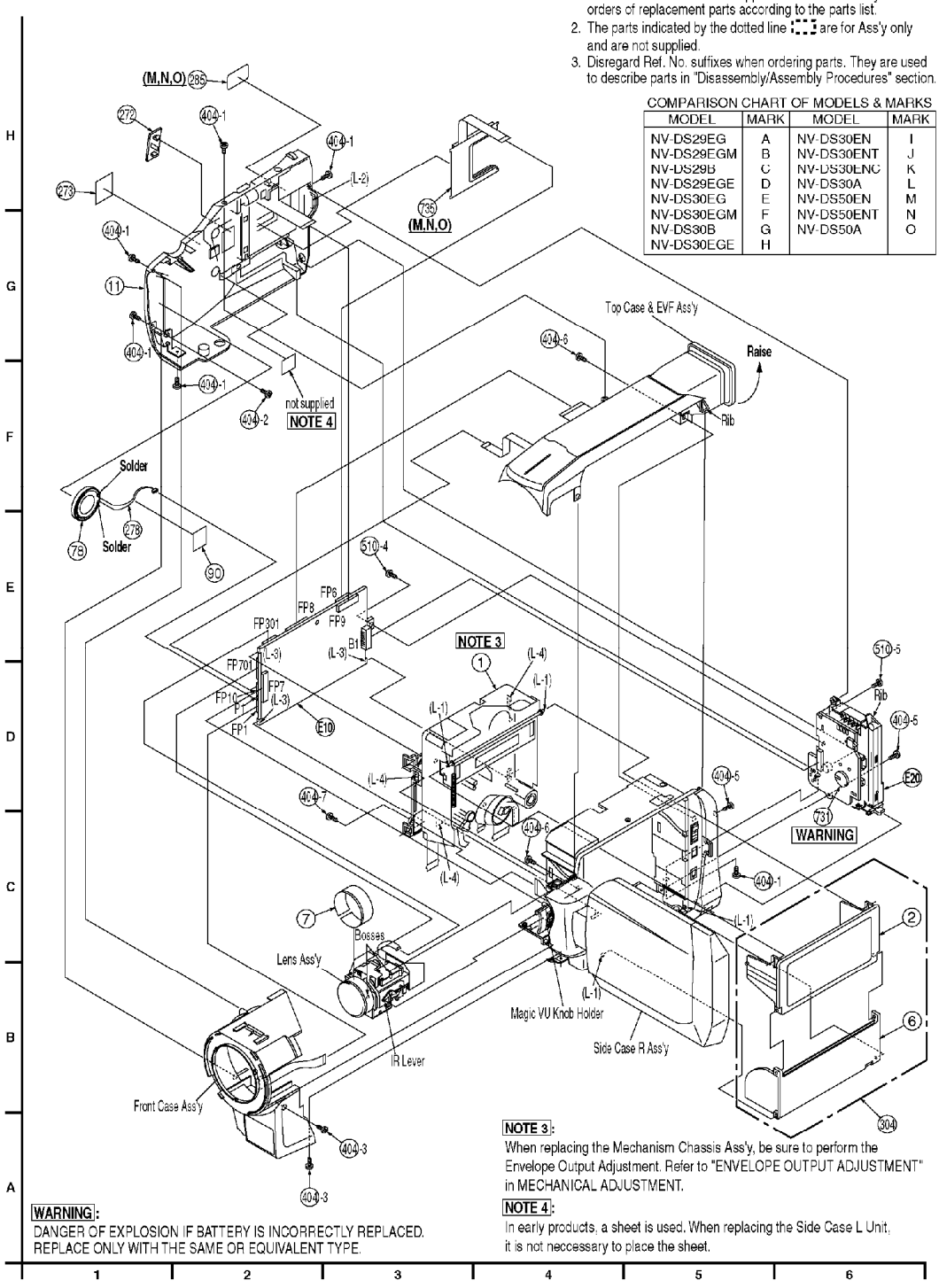
❶ MAIN PARTS SECTION

Note:

1. Parts with no Ref. No. in "EXPLODED VIEW" are not supplied. And some Ref. No. will be skipped. Be sure to make your orders of replacement parts according to the parts list.
2. The parts indicated by the dotted line ⋯ are for Ass'y only and are not supplied.
3. Disregard Ref. No. suffixes when ordering parts. They are used to describe parts in "Disassembly/Assembly Procedures" section.

COMPARISON CHART OF MODELS & MARKS

MODEL	MARK	MODEL	MARK
NV-DS29EG	A	NV-DS30EN	I
NV-DS29EGM	B	NV-DS30ENT	J
NV-DS29B	C	NV-DS30ENC	K
NV-DS29EGE	D	NV-DS30A	L
NV-DS30EG	E	NV-DS50EN	M
NV-DS30EGM	F	NV-DS50ENT	N
NV-DS30B	G	NV-DS50A	O
NV-DS30EGE	H		



WARNING:
DANGER OF EXPLOSION IF BATTERY IS INCORRECTLY REPLACED.
REPLACE ONLY WITH THE SAME OR EQUIVALENT TYPE.

NOTE 3:
When replacing the Mechanism Chassis Ass'y, be sure to perform the Envelope Output Adjustment. Refer to "ENVELOPE OUTPUT ADJUSTMENT" in MECHANICAL ADJUSTMENT.

NOTE 4:
In early products, a sheet is used. When replacing the Side Case L Unit, it is not neccessary to place the sheet.

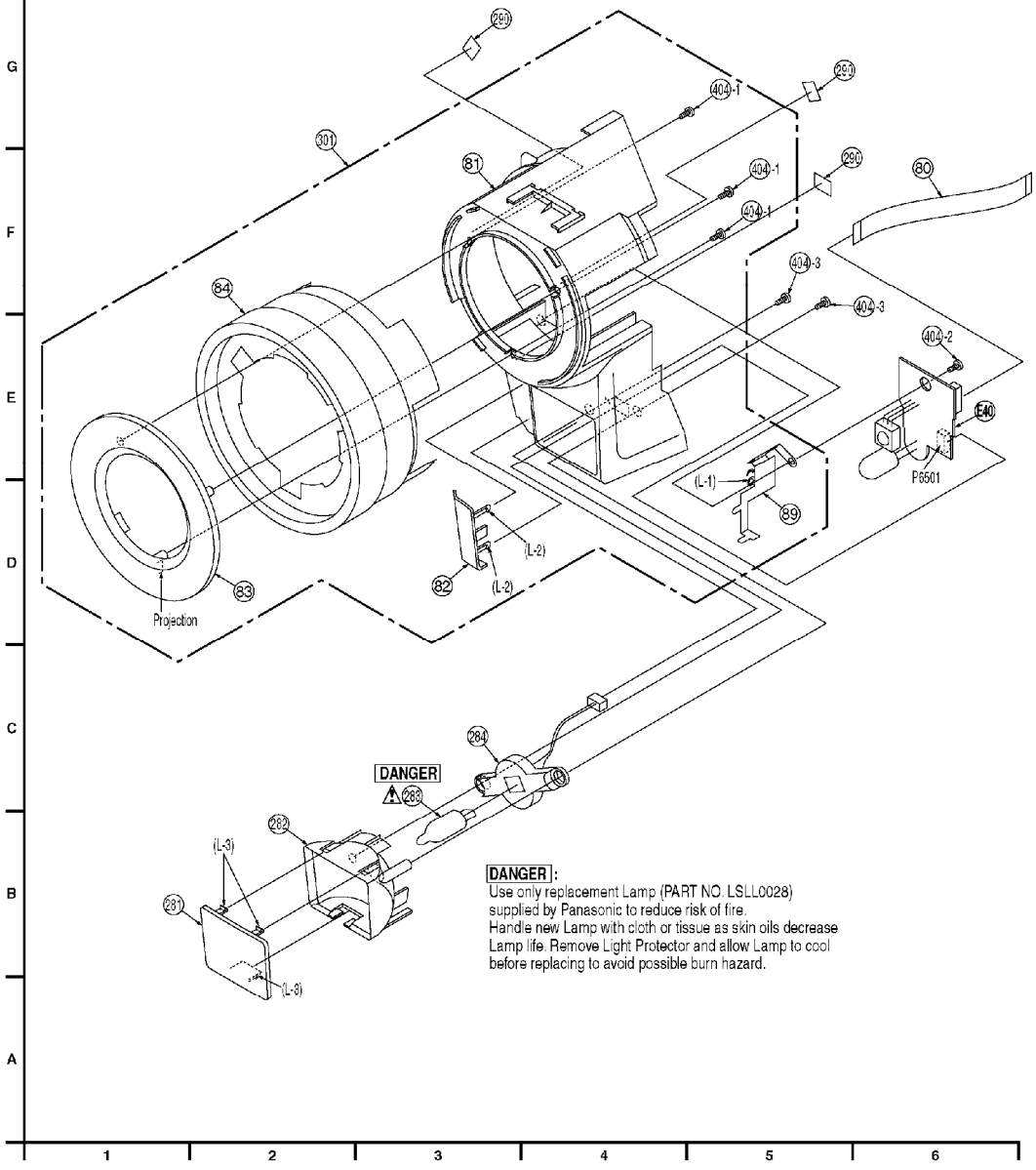
12.2. FRONT CASE SECTION

❷ FRONT CASE SECTION

Note:
1. Parts with no Ref. No. in "EXPLODED VIEW" are not supplied. And some Ref. No. will be skipped. Be sure to make your orders of replacement parts according to the parts list.
2. The parts indicated by the dotted line ⬚ are for Ass'y only and are not supplied.
3. Disregard Ref. No. suffixes when ordering parts. They are used to describe parts in "Disassembly/Assembly Procedures" section.

IMPORTANT SAFTY NOTICE:

COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.



12.3. CCD AND LENS SECTION

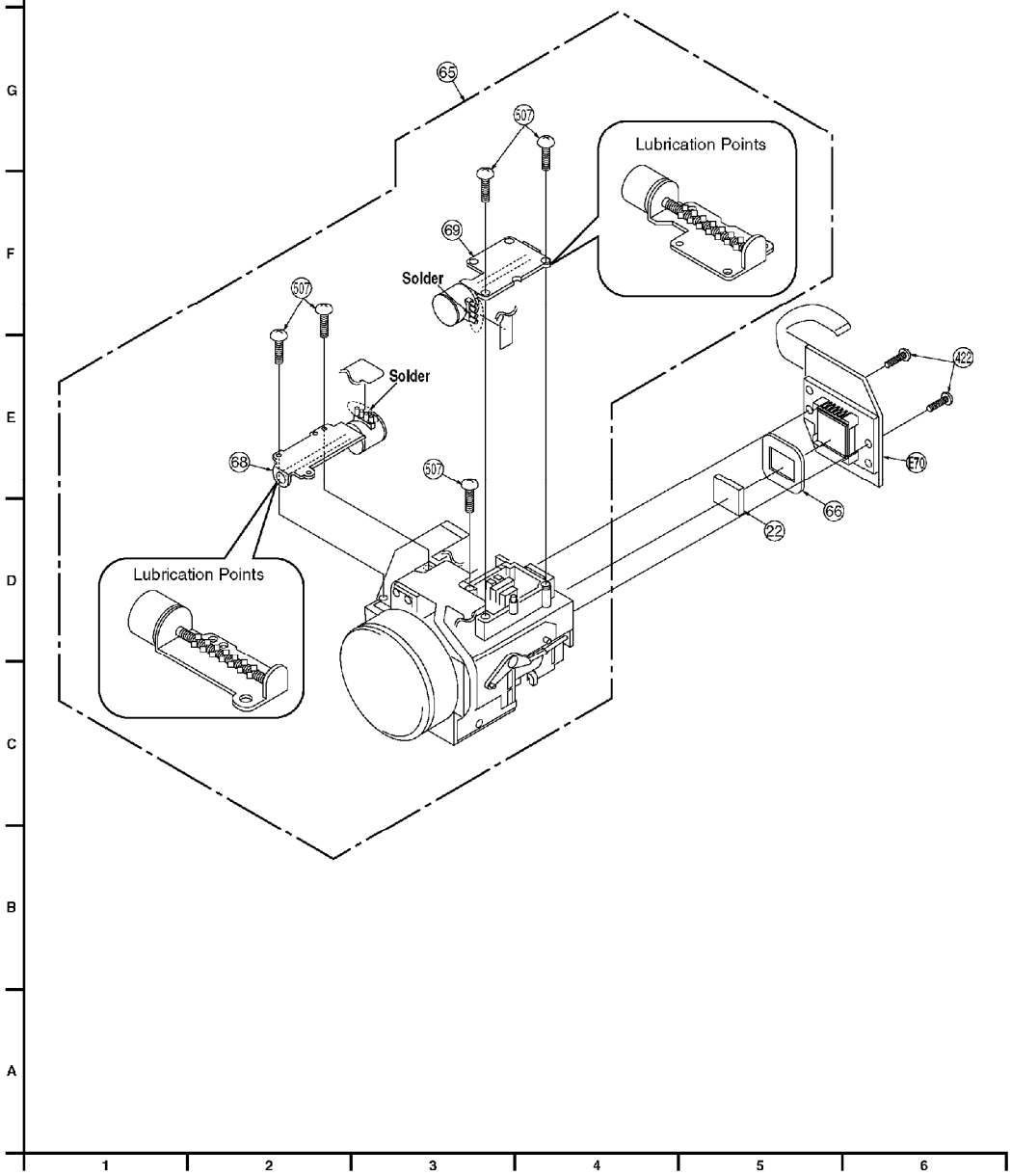
❸ CCD AND LENS SECTION

Note:

1. Parts with no Ref. No. in "EXPLODED VIEW" are not supplied. And some Ref. No. will be skipped. Be sure to make your orders of replacement parts according to the parts list.
2. The parts indicated by the dotted line ⬚ are for Ass'y only and are not supplied.
3. Disregard Ref. No. suffixes when ordering parts. They are used to describe parts in "Disassembly/Assembly Procedures" section.

LUBRICATION POINTS
When the marked parts are replaced, apply the recommended lubricants or adhesive for better maintenance of the unit.

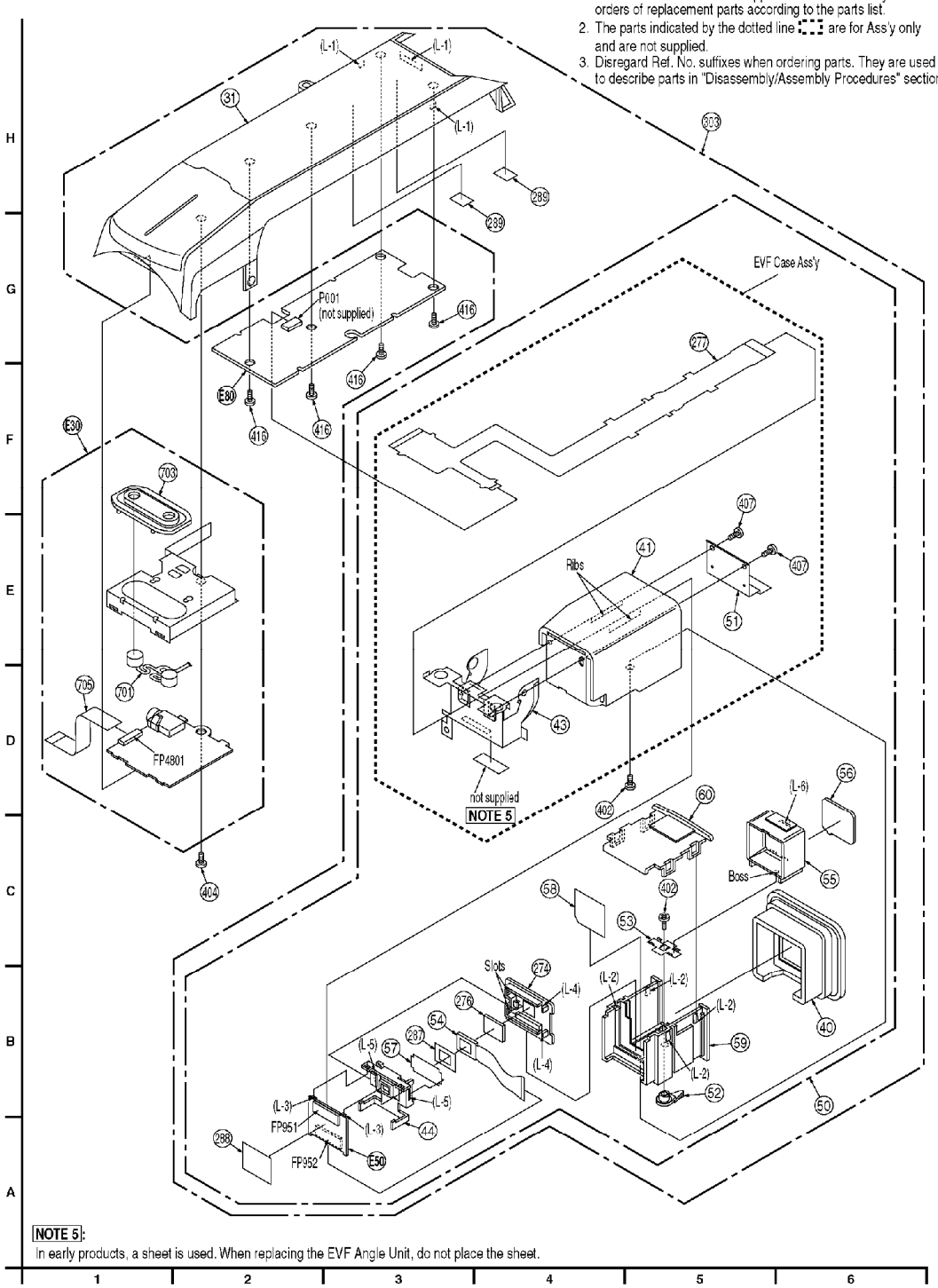
Mark	Kind of Lubricant	Availability	Part Number
□□□	Grease	Availability from Factroy	LSUQ0002



12.4. TOP CASE AND EVF SECTION

❹ TOP CASE AND EVF SECTION

Note:
1. Parts with no Ref. No. in "EXPLODED VIEW" are not supplied. And some Ref. No. will be skipped. Be sure to make your orders of replacement parts according to the parts list.
2. The parts indicated by the dotted line ⬚ are for Ass'y only and are not supplied.
3. Disregard Ref. No. suffixes when ordering parts. They are used to describe parts in "Disassembly/Assembly Procedures" section.

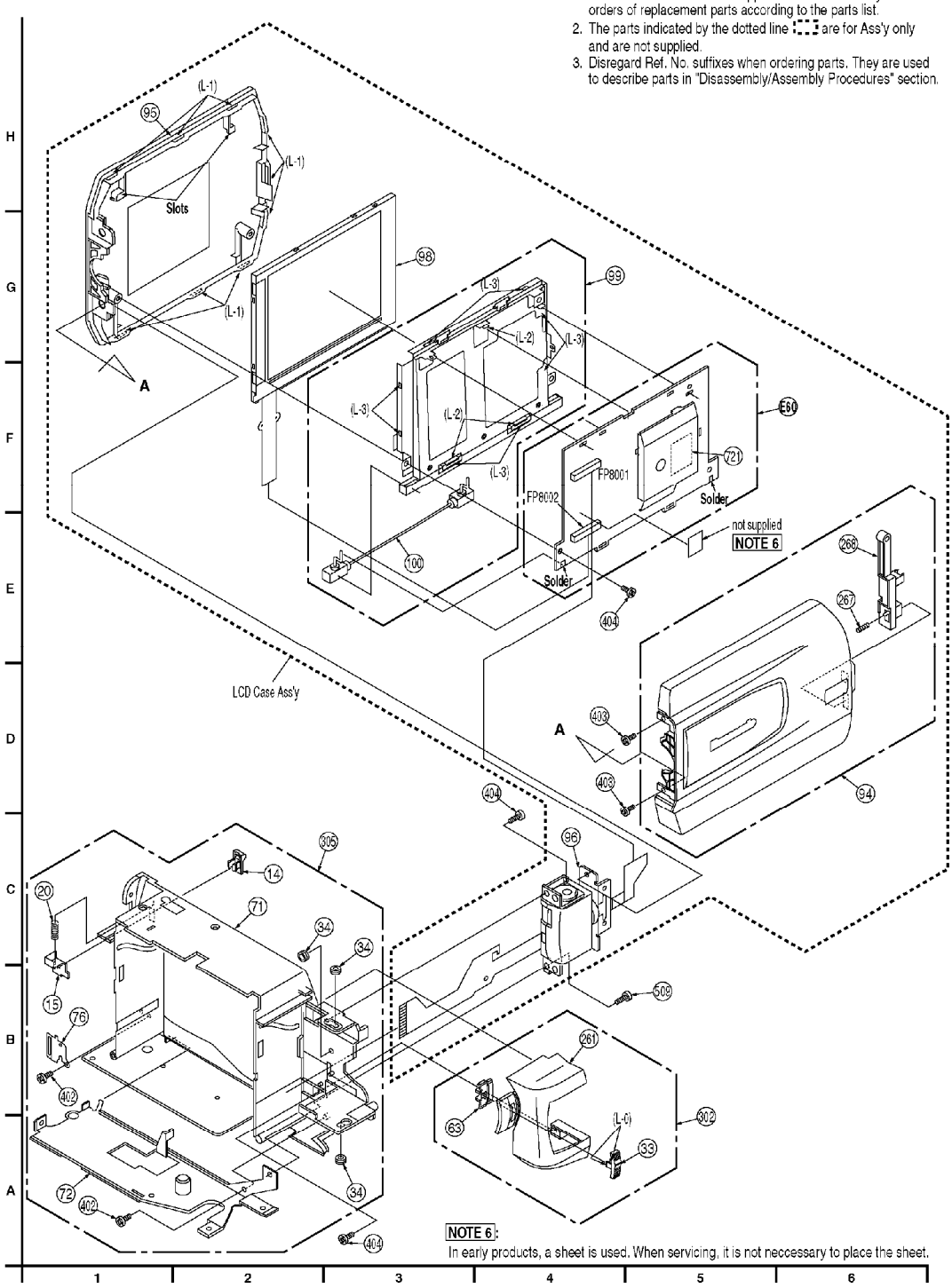


NOTE 5:
In early products, a sheet is used. When replacing the EVF Angle Unit, do not place the sheet.

12.5. SIDE CASE R AND LCD SECTION

❺ SIDE CASE R AND LCD SECTION

Note:
1. Parts with no Ref. No. in "EXPLODED VIEW" are not supplied. And some Ref. No. will be skipped. Be sure to make your orders of replacement parts according to the parts list.
2. The parts indicated by the dotted line ⬚ are for Ass'y only and are not supplied.
3. Disregard Ref. No. suffixes when ordering parts. They are used to describe parts in "Disassembly/Assembly Procedures" section.

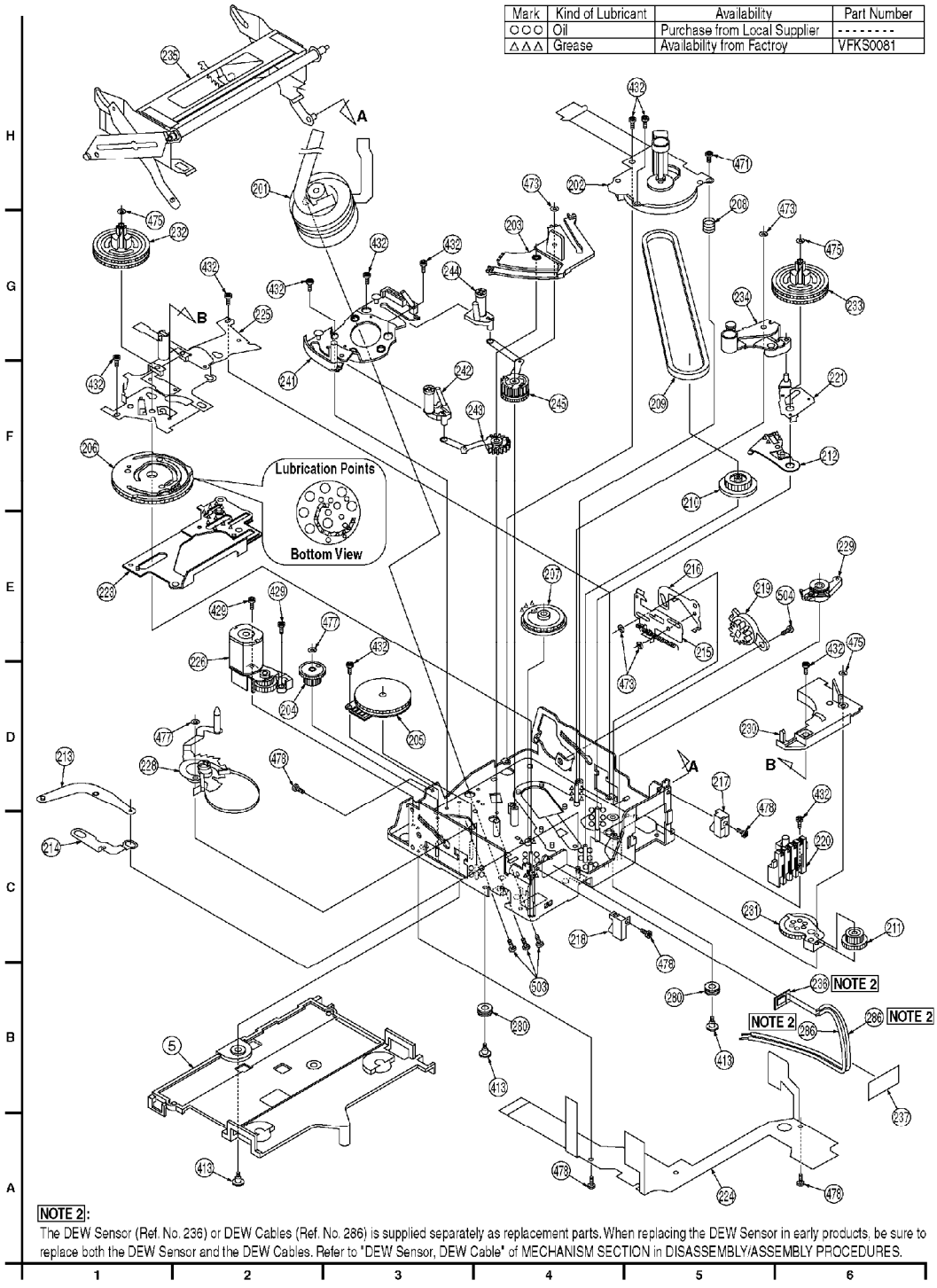


12.6. MECHANISM SECTION

❻ MECHANISM SECTION

LUBRICATION POINTS
When the marked parts are replaced, apply the recommended lubricants or adhesive for better maintenance of the unit.

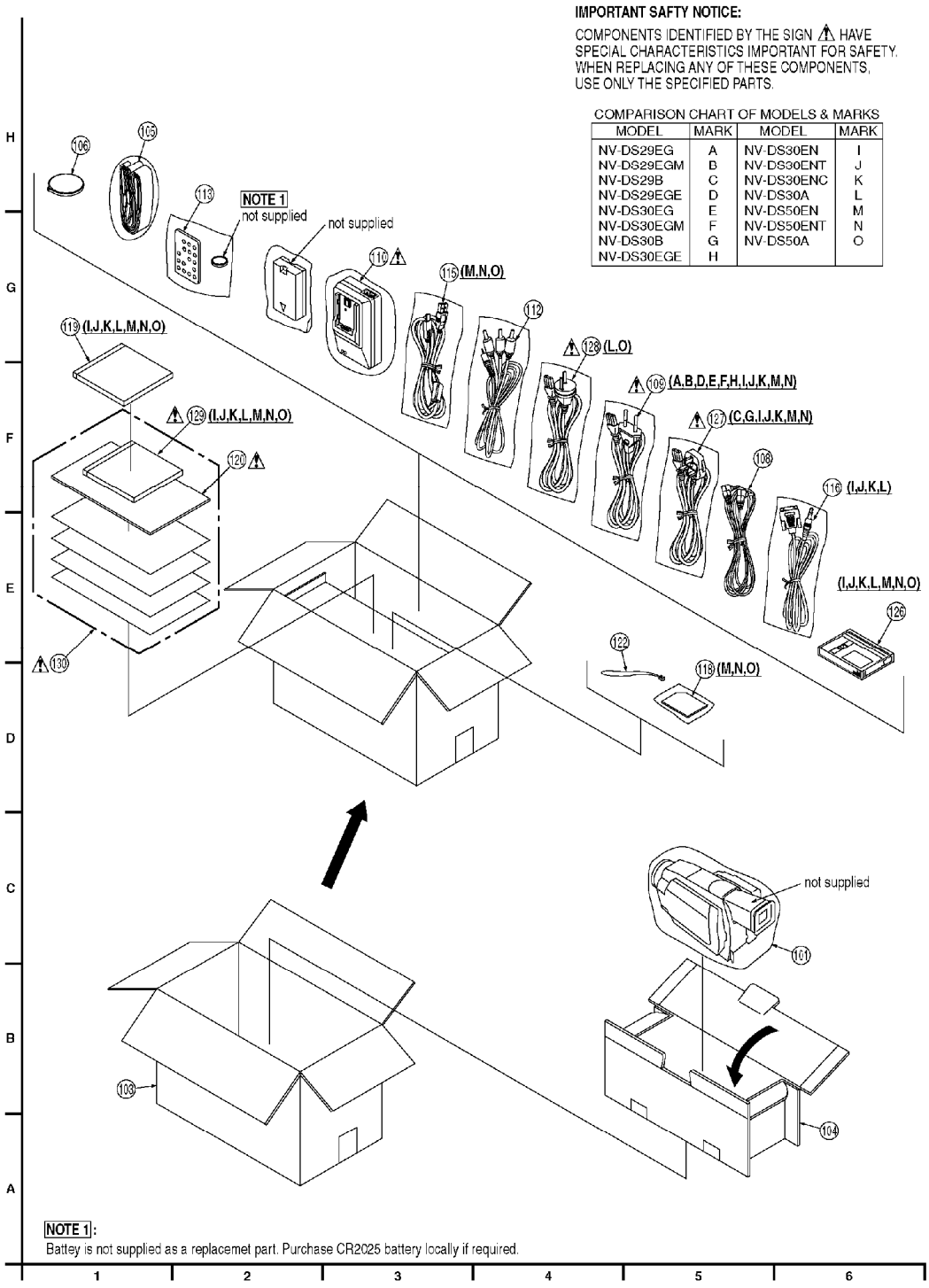
Mark	Kind of Lubricant	Availability	Part Number
○○○	Oil	Purchase from Local Supplier	--------
△△△	Grease	Availability from Factroy	VFKS0081



NOTE 2:
The DEW Sensor (Ref. No. 236) or DEW Cables (Ref. No. 286) is supplied separately as replacement parts. When replacing the DEW Sensor in early products, be sure to replace both the DEW Sensor and the DEW Cables. Refer to "DEW Sensor, DEW Cable" of MECHANISM SECTION in DISASSEMBLY/ASSEMBLY PROCEDURES.

12.7. PACKING PARTS AND ACCESSORIES SECTION

❼ PACKING PARTS AND ACCESSORIES SECTION


IMPORTANT SAFTY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.
COMPARISON CHART OF MODELS & MARKS
MODEL | MARK | MODEL | MARK
NV-DS29EG | A | NV-DS30EN | I
NV-DS29EGM | B | NV-DS30ENT | J
NV-DS29B | C | NV-DS30ENC | K
NV-DS29EGE | D | NV-DS30A | L
NV-DS30EG | E | NV-DS50EN | M
NV-DS30EGM | F | NV-DS50ENT | N
NV-DS30B | G | NV-DS50A | O
NV-DS30EGE | H
NOTE 1
not supplied
not supplied
(M,N,O)
(I,J,K,L,M,N,O)
(I,J,K,L,M,N,O)
(L,O)
(A,B,D,E,F,H,I,J,K,M,N)
(C,G,I,J,K,M,N)
(I,J,K,L)
(I,J,K,L,M,N,O)
(M,N,O)
not supplied
NOTE 1:
Battey is not supplied as a replacemet part. Purchase CR2025 battery locally if required.

13. REPLACEMENT PARTS LISTS

BEFORE REPLACING PARTS, READ THE FOLLOWING:

13.1. REPLACEMENT NOTES

13.1.1. General Notes

1. Use only original replacement parts:

To maintain original function and reliability of repaired units, use only

original replacement parts which are listed with their part numbers in the parts list.

2. **IMPORTANT SAFETY NOTICE**
   Components identified by the sign ⚠ have special characteristics important for safety. When replacing any of these components, use only the specified parts.
3. **SPECIAL NOTE**
   All integrated circuits and many other semiconductor devices are electrostatically sensitive and therefore require the special handling techniques described under the "ELECTROSTATICALLY SENSITIVE (ES) DEVICES" section of this service manual.
4. **Parts with no Ref. No. in "EXPLODED VIEWS" are not supplied. And some Ref. No. will be skipped. Be sure to make your orders of replacement parts according to the parts list.**
5. **Parts different in shape or size may be used. However, only interchangeable parts will be supplied as service replacement parts.**
6. **Parts with mark "VED" in the Remarks column are supplied from VED. Others are supplied from MKE.**
7. **Item numbers with capital letter E (Example: E10, E20,...) in the Ref. No. column are shown in the exploded views.**
8. **Parts whose Ref. Nos. are the same are interchangeable as replacement parts. Any of these parts may be ordered and used as a replacement part.**
9. **Battery (Ref. No. 731) replacement note:**
   WARNING: DANGER OF EXPLOSION IF BATTERY IS INCORRECTLY REPLACED. REPLACE ONLY WITH THE SAME OR EQUIVALENT TYPE.
10. **SPECIAL NOTE***
    The following parts are supplied only as units: Front C.B.A. (Ref. No. E40), LCD Case A Unit (Ref. No. 94), Front Case Unit (Ref. No. 301), Front Cover Unit (Ref. No. 302), Top/Electronic Viewfinder Unit (Ref. No. 303), Microphone C.B.A. (Ref. No. E30), Cassette Cover (Ref. No. 304) and Side Case R Unit (Ref. No. 305). Therefore, parts indicated by (* NOTE) in the Remarks column are not supplied as separate replacement parts.
    In case any parts indicated by (*NOTE) require replacing, be sure to replace the whole unit (e.g., entire Front Case Unit).

Ref. No.	Part No.	Ref. No.	Consisting Parts *NOTE	
E40	FRONT C.B.A.		Individual parts on FRONT C.B.A. (Electrical parts)	*NOTE
94	LCD CASE A UNIT	257	LCD LOCK KNOB SPRING	*NOTE
		258	LCD LOCK KNOB	*NOTE
301	FRONT CASE UNIT	81	FRONT CASE,ABS RESIN	*NOTE
		82	INFRARED PANEL	*NOTE
		83	LENS HOOD	*NOTE
		84	LENS RING	*NOTE
		89	FRONT ESD ANGLE	*NOTE
302	FRONT COVER UNIT	33	MAGICVU KNOB	*NOTE
		63	MAGICVU KNOB HOLDER	*NOTE
		261	FRONT COVER	*NOTE
303	TOP/ELECTRONIC VIEWFINDER UNIT	31	TOP CASE UNIT,ABS RESIN	*NOTE
		40	EYE CAP	*NOTE
		41	EVF CASE,ABS RESIN	*NOTE
		43	EVE ANGLE UNIT	*NOTE
		44	LED HOLDER	*NOTE
		50	ELECTRONIC VIEWFINDER UNIT	*NOTE
		51	EVF ESD ANGLE	*NOTE
		52	EYE SIGHT LEVER B	*NOTE
		53	EYE SIGHT LEVER A	*NOTE
		54	LIQUID CRYSTAL DISPLAY PANEL	*NOTE
		55	LENS HOLDER	*NOTE
		56	LENS	*NOTE
		57	LED DIFFUSION SHEET,PLASTIC	*NOTE
		58	PROTECT PLATE A,PLASTIC	*NOTE
		59	EVF PROTECT B	*NOTE
		60	EVF PROTECT A	*NOTE
		274	EVF MASK	*NOTE
		276	PROTECT PLATE B,PLASTIC	*NOTE
		277	TOP FLEXIBLE PRINTED CIRCUIT	*NOTE
		287	MASK CUSHION,URETHANE	*NOTE
		288	SHEET,NYLON-RAYON	*NOTE
		289	CUSHION,NYLON-RAYON	*NOTE
		407	SCREW,STEEL	*NOTE
		E50	ELECTRONIC VIEWFINDER BACK LIGHT C.B.A.	*NOTE
			Individual parts on ELECTRONIC VIEWFINDER BACK LIGHT C.B.A. (Electrical parts)	*NOTE
E30	MICROPHONE C.B.A.	701	ELECTORIC CONDENSER MICROPHONE UNIT	*NOTE
		703	MICROPHONE DAMPER	*NOTE
		705	FLEXIBLE FLAT CABLE W/OUT PLUG,4.8V	*NOTE
			Individual parts on MICROPHONE C.B.A. (Electrical parts)	*NOTE
304	CASSETTE COVER UNIT	2	CASSETTE COVER A	*NOTE
		6	CASSETTE COVER B	*NOTE
305	SIDE CASE R UNIT	14	CASSETTE EJECT KNOB	*NOTE
		15	CASSETTE EJECT PIECE	*NOTE
		20	CASSETTE EJECT SPRING	*NOTE
		34	LENS RUBBER	*NOTE
		71	SIDE CASE R,ABS RESIN	*NOTE
		72	TRIPOD FRAME	*NOTE
		76	STRAP ANGLE	*NOTE

13.1.2. Mechanical Replacement Notes

1. Section No. of parts shown in Exploded Views are indicated in the Remarks column.

2. Abbreviation
RTL: Retention Time Limited
This indicates that the retention time is limited for this item. After the discontinuation of this item in production, it will no longer be available.

3. Cut Washers (Ref No. 473, 475, and 477) are not reusable. If removed, install a new one.

4. Lamp (Ref No. 283) replacement note: / DANGER: Use only

replacement Lamp (PART NO. LSLL0028) supplied by Panasonic to reduce risk of fire. Handle new Lamp with cloth or tissue as skin oils decrease Lamp life. Remove Light Protector and allow Lamp to cool before replacing to avoid possible burn hazard.

5. **DEW Sensor (Ref. No. 236) and DEW Cables (Ref. No. 286) replacement note:**
   The DEW Sensor (Ref. No. 236) or DEW Cables (Ref. No. 286) is supplied separately as replacement parts. When replacing the DEW Sensor in early products, be sure to replace both the DEW Sensor and the DEW Cables. Refer to "DEW Sensor, DEW Cable" of MECHANISM SECTION in DISASSEMBLY/ASSEMBLY PROCEDURES.
6. **Mechanism Chassis Ass'y (Ref. No. 1) replacement note:**
   When replacing the Mechanism Chassis Ass'y, be sure to perform the Envelope Output Adjustment. Refer to "ENVELOPE OUTPUT ADJUSTMENT" in MECHANICAL ADJUSTMENT.

13.2. MECHANICAL REPLACEMENT PARTS LIST

COMPARISON CHART OF MODELS & MARKS

MODEL	MARK	MODEL	MARK
NV-DS29EG	A	NV-DS30EN	I
NV-DS29EGM	B	NV-DS30ENT	J
NV-DS29B	C	NV-DS30ENC	K
NV-DS29EGE	D	NV-DS30A	L
NV-DS30EG	E	NV-DS50EN	M
NV-DS30EGM	F	NV-DS50ENT	N
NV-DS30B	G	NV-DS50A	O
NV-DS30EGE	H		

MECHANICAL REPLACEMENT PARTS

Ref. No.	Part No.	Part Name & Description	Remarks
1	LSXY0349	MECHANISM CHASSIS ASS'Y	1
2	LSKM0797	CASSETTE COVER A	1 *NOTE
5	LSYK0831	MECHANISM BASE UNIT	6
6	LSKM0680	CASSETTE COVER B	1 *NOTE
7	LSMT0071	LENS CUSHION,RUBBER	1
11	LSYK0825	SIDE CASE L UNIT,ABS RESIN (A,B,C,D,E,F,G,H)	1
11	LSYK0826	SIDE CASE L UNIT,ABS RESIN (I,J,K,L)	1
11	LSYK0827	SIDE CASE L UNIT,ABS RESIN (M,N,O)	1
14	LSGT0060	CASSETTE EJECT KNOB	5 *NOTE
15	LSMD0304	CASSETTE EJECT PIECE	5 *NOTE
20	LSMB0198	CASSETTE EJECT SPRING	5 *NOTE
22	LSFL0103	OPTICAL FILTER	3
31	LSYK0850	TOP CASE UNIT,ABS RESIN (A,B,C,D)	4 *NOTE
31	LSYK0851	TOP CASE UNIT,ABS RESIN (E,F,G,H,I,J,K,L)	4 *NOTE
31	LSYK0852	TOP CASE UNIT,ABS RESIN (M,N,O)	4 *NOTE
33	LSGT0061	MAGICVU KNOB	5 *NOTE
34	LSMT0074	LENS RUBBER	5 *NOTE
40	LSMG0106	EYE CAP	4 *NOTE
41	LSMD0770	EVF CASE,ABS RESIN	4 *NOTE
43	LSXA0456	EVF ANGLE UNIT	4 *NOTE
44	LSMD0327	LED HOLDER	4 *NOTE
50	LSYK0854	ELECTRONIC VIEWFINDER UNIT	4 *NOTE
51	LSSC0546	EVF ESD ANGLE	4 *NOTE
52	LSGT0063	EYE SIGHT LEVER B	4 *NOTE
53	LSMB0270	EYE SIGHT LEVER A	4 *NOTE
54	L5BDAXG00003	LIQUID CRYSTAL DISPLAY PANEL	4 *NOTE
55	LSKD0328	LENS HOLDER	4 *NOTE
56	LSFL0134	LENS	4 *NOTE
57	LSDL0212	LED DIFFUSION SHEET,PLASTIC	4 *NOTE
58	LSDL0210	PROTECT PLATE A,PLASTIC	4 *NOTE
59	LSMD0323	EVF PROTECT B	4 *NOTE
60	LSMD0322	EVF PROTECT A	4 *NOTE
63	LSMD0305	MAGICVU KNOB HOLDER	5 *NOTE
65	LSXN0025	LENS UNIT	3
66	LSMG0095	FILTER RUBBER	3
68	LSEM0064	ZOOM MOTOR UNIT	3
69	LSEM0065	FOCUS MOTOR UNIT	3
71	LSKM0788	SIDE CASE R,ABS RESIN	5 *NOTE
72	LSMA0577	TRIPOD FRAME	5 *NOTE
76	LSMA0542	STRAP ANGLE	5 *NOTE
78	L0AA02A00034	SPEAKER	1
80	LSJW0035	FLEXIBLE FLAT CABLE W/OUT PLUG,8V	2
81	LSKM0758	FRONT CASE,ABS RESIN	2 *NOTE
82	LSGL0370	INFRARED PANEL	2 *NOTE
83	LSMD0334	LENS HOOD	2 *NOTE
84	LSGK0093	LENS RING	2 *NOTE
89	LSSC0540	FRONT ESD ANGLE	2 *NOTE
90	VMFW0100	SHEET,NYLON-RAYON	1
94	LSYK0855	LCD CASE A UNIT,ABS RESIN (A,B,C,D,E,F,G,H,I,J,K,L)	5
94	LSYK0856	LCD CASE A UNIT,ABS RESIN (M,N,O)	5
95	LSKM0762	LCD CASE B,ABS RESIN	5
96	LSXA0455	LCD SHAFT UNIT	5
98	LSXY0241	LIQUID CRYSTAL DISPLAY PANEL UNIT	5
99	LSXY0353	LEAD LIGHT PANEL UNIT	5
100	LSXY0205	LAMP UNIT	5
101	LSPF0089	BAG,POLYETHYLENE	7
103	LSPG1281	PACKING CASE,PAPER(A,D)	7

Ref. No.	Part No.	Part Name & Description	Remarks
103	LSPG1282	PACKING CASE,PAPER(B)	7
103	LSPG1283	PACKING CASE,PAPER(C)	7
103	LSPG1284	PACKING CASE,PAPER(E,H)	7
103	LSPG1285	PACKING CASE,PAPER(F)	7
103	LSPG1286	PACKING CASE,PAPER(G)	7
103	LSPG1287	PACKING CASE,PAPER(I,J,K,L)	7
103	LSPG1288	PACKING CASE,PAPER(M,N,O)	7
104	LSTG1296	ACCESSORY PACKING CASE,PAPER	7
105	VFC3506-1A	SHOULDER STRAP	7
106	LSYF0521	LENS CAP UNIT	7
108	LSJA0310	DC CABLE W/PLUG	7
109	K2CR2DA00004	AC CORD W/PLUG (A,B,D,E,F,H,I,J,K,M,N)	7 ⚠
110	DE-855AB	AC ADAPTOR UNIT	7 ⚠
112	LSJA0280	AUDIO/VIDEO CABLE W/PLUG	7
113	LSSQ0336	INFRARED REMOTE CONTROL UNIT	7
115	K1HA05CD0001	UNIVERSAL SERIAL BUS CABLE W/PLUG (M,N,O)	7
116	K1HB09BZ0001	PC CONNECTION CABLE W/PLUG (I,J,K,L)	7
118	RP-SD008BMK0	SD MEMORY CARD (M,N,O)	7
119	LSFT0494	APPLICATION SOFTWARE CD-ROM (I,J,K,L)	7
119	LSFT0496	APPLICATION SOFTWARE CD-ROM (M,N,O)	7
120	VQT9687	INSTRUCTION BOOK (A,E)	7 ⚠ ;
120	VQT9689	INSTRUCTION BOOK (B,F)	7 ⚠
120	VQT9691	INSTRUCTION BOOK (C,G)	7 ⚠
120	VQT9693	INSTRUCTION BOOK (I,J,K,M,N)	7 ⚠
120	VQT9695	INSTRUCTION BOOK (L,O)	7 ⚠
120	VQT9703	INSTRUCTION BOOK (D,H)	7 ⚠
122	LSGQ0066	HOOD STRAP	7
126	VFK1451	DVC HEAD CLEANING TAPE (I,J,K,L,M,N,O)	7
127	VJA0940	AC CORD W/PLUG (C,G,I,J,K,M,N)	7 ⚠
128	K2CJ2DA00002	AC CORD W/PLUG (L,O)	7 ⚠
128	VJA1068	AC CORD W/PLUG (L,O)	7 ⚠
129	VQT9696	INSTRUCTION CD-ROM (I,J,K)	7 ⚠
129	VQT9697	INSTRUCTION CD-ROM (L)	7 ⚠
129	VQT9701	INSTRUCTION CD-ROM (M,N)	7 ⚠
129	VQT9702	INSTRUCTION CD-ROM (O)	7 ⚠
130	VQF8863	FAN BAG (A,E)	7 ⚠
130	VQF8864	FAN BAG (B,F)	7 ⚠
130	VQF8865	FAN BAG (C,G)	7 ⚠
130	VQF8866	FAN BAG (D,H)	7 ⚠
130	VQF8867	FAN BAG (I,J,K)	7 ⚠
130	VQF8868	FAN BAG (L)	7 ⚠
130	VQF8869	FAN BAG (M,N)	7 ⚠
130	VQF8870	FAN BAG (O)	7 ⚠
201	LSEG0043	CYLINDER UNIT	6
202	LSEM0061	CAPSTAN UNIT	6
203	LSMD0185	RAIL	6
204	LSDG0092	REDUCTION GEAR B	6
205	LSSR0004	MODE SWITCH	6
206	LSDG0093	CAM GEAR	6

Ref. No.	Part No.	Part Name & Description	Remarks
207	LSDG0094	INTERMEDIATE GEAR	6
208	LSMB0180	CAPSTAN ADJUST SPRING	6
209	LSDV0006	TIMING BELT	6
210	LSDG0095	DRIVE PULLEY	6
211	LSDG0096	CENTER GEAR	6
212	LSMA0364	T4 DRIVE ARM	6
213	LSML0099	TENSION DRIVE ARM	6
214	LSML0100	S BRAKE DRIVE LEVER	6
215	VXLS1122	LOCK LEVER UNIT	6
216	LSML0102	LOCK PICK LEVER	6
217	LSMD0186	GUIDE PIECE R	6
218	LSMD0187	GUIDE PIECE L	6
219	LSXP0018	DAMPER UNIT	6
220	LSSH0001	MEMORY IN CASSETTE SWITCH	6
221	LSMA0365	PINCH DRIVE ARM	6
223	VXLS1115	MAIN PLATE UNIT	6
224	LSEK0433	MECHANISM FLEXIBLE PRINTED CIRCUIT UNIT	6
225	LSEK0431	SENSOR FLEXIBLE PRINTED CIRCUIT UNIT	6
226	VEMS0335	LOADING MOTOR UNIT	6
228	VXLS1116	TENSION ARM UNIT	6
229	LSXL0085	T BRAKE UNIT	6
230	VXDS0215	MECHANISM COVER UNIT	6
231	VXLS1084	IDLER ARM UNIT	6
232	LSXR0002	S REEL TABLE	6
233	LSXR0003	T REEL TABLE	6
234	VXLS1123	PINCH ARM UNIT	6
235	VXAS4418	GARAGE UNIT	6
236	LSJB8181	DEW SENSOR	6
237	VMFW0045	SHEET,NYLON-RAYON	6
241	LSXD0017	CYLINDER BASE UNIT	6
242	LSXD0021	S POST UNIT	6
242	VXDS0210	S POST UNIT	6
243	VXLS1118	S ARM UNIT	6
244	LSXD0020	T POST UNIT	6
244	VXDS0209	T POST UNIT	6
245	VXLS1119	T ARM UNIT	6
261	LSKM0769	FRONT COVER	5 *NOTE
267	LSMB0274	LCD LOCK KNOB SPRING	5 *NOTE
268	LSGU0529	LCD LOCK KNOB	5 *NOTE
272	LSKF0433	EVR COVER	1
273	LSQL1307	LIGHT CAUTION LABEL	1
274	LSMD0326	EVF MASK	4 *NOTE
276	LSDL0211	PROTECT PLATE B,PLASTIC	4 *NOTE
277	LSJB8170	TOP FLEXIBLE PRINTED CIRCUIT	4 *NOTE
278	LSEK0450	SPEAKER CABLE W/PLUG,4.8V	1
280	LSMG0108	DAMPER RUBBER	6
281	LSGF0050	LIGHT PROTECOTR	2
282	LSMR0008	LIGHT REFLECTOR	2
283	LSLL0028	LAMP	2 ⚠
284	LSEK0409	LAMP SOCKET UNIT	2
285	LSGB0031	MULTI MEDIA CARD BADGE (M,N,O)	1
286	LSEU03B55UU	DEW CABLE W/OUT PLUG,1V	6
287	LSMT0075	MASK CUSHION,URETHANE	4 *NOTE
288	LSMF0214	SHEET,NYLON-RAYON	4 *NOTE
289	LSMT0370	CUSHION,RUBBER	4 *NOTE
290	LSMT0076	CUSHION,RUBBER	2

Ref. No.	Part No.	Part Name & Description	Remarks
301	LSYK0837	FRONT CASE UNIT,ABS RESIN	2
302	LSYK0839	FRONT COVER UNIT	5
303	LSYK0861	TOP/ELECTRONIC VIEWFINDER UNIT (A,B,C,D)	4
303	LSYK0862	TOP/ELECTRONIC VIEWFINDER UNIT (E,F,G,H,I,J,K,L)	4
303	LSYK0863	TOP/ELECTRONIC VIEWFINDER UNIT (M,N,O)	4
304	LSYK0845	CASSETTE COVER UNIT	1
305	LSYK0843	SIDE CASE R UNIT,ABS RESIN	5
402	XQN2+BJ4FXK	SCREW,STEEL	4,5
403	XQN2+BF4FXK	SCREW,STEEL	5
404	XQN2+BJ5FXK	SCREW,STEEL	1,2,4,5
407	XQN2+BF4FN	SCREW,STEEL	4 *NOTE
413	LSHD0051	SCREW,STEEL	6
416	XQN2+BJ3FXK	SCREW,STEEL	4
422	XQN16+CJ5FY	SCREW,STEEL	3
429	XQN14+B35	SCREW,STEEL	6
432	XQN14+B2	SCREW,STEEL	6
471	XQN14+B35FNK	SCREW,STEEL	6
473	VMX2026	CUT WASHER,STEEL	6
475	VMX2750	CUT WASHER,STEEL	6
477	VMX2028	CUT WASHER,STEEL	6
478	XQN14+B12FN	SCREW,STEEL	6
503	LSHD0073	SCREW,STEEL	6
504	XQN2+B35	SCREW,STEEL	6
507	XQN14+BJ4	SCREW,STEEL	3
509	XQN2+BF8FN	SCREW,STEEL	5
510	XQN2+BF5FXK	SCREW,STEEL	1
701	LSEK0447	ELECTORIC CONDENSER MICROPHONE UNIT	4 *NOTE
703	LSMG0111	MICROPHONE DAMPER	4 *NOTE
705	LSJW0033	FLEXIBLE FLAT CABLE W/OUT PLUG,4.8V	4 *NOTE
721	VMZW0660	INSULATION SHEET,PLASTIC	5
731	LSSB0004	BATTERY	1
735	LSEP8172A1	SD HOLDER UNIT NR (M,N,O)	1
E10	LSEP8165P1	MAIN C.B.A. (A,B,C,D)	1
E10	LSEP8165Q1	MAIN C.B.A. (E,F,G,H)	1
E10	LSEP8165R1	MAIN C.B.A. (I,J,K,L)	1
E10	LSEP8165S1	MAIN C.B.A. (M,N,O)	1
E20	LSEP8183P1	REAR C.B.A. (A,B,C,D,E,F,G,H,I,J,K,L)	1 RTL
E20	LSEP8183Q1	REAR C.B.A. (M,N,O)	1 RTL
E30	LSXM0024	MICROPHONE C.B.A.	4 RTL
E40	LSEP8193A1	FRONT C.B.A.	2 RTL
E50	LSEP8169B1	ELECTRONIC VIEWFINDER BACK LIGHT C.B.A.	4 RTL *NOTE
E60	LSEP8188B1	LIQUID CRYSTAL DISPLAY C.B.A.	5 RTL
E70	LSEQ0639	CCD C.B.A. NR	3
E80	LSEP8177C1	TOP OPERATION C.B.A. NR	4

SERVICE FIXTURES AND TOOLS

Ref. No.	Part No.	Part Name & Description	Remarks
	VFM3010EDS	COLOR BAR STANDARD TAPE	VED
	VFK1451	DVC HEAD CLEANING TAPE	VED
	LSVQ0041	TAPE PATH ALIGNMENT TAPE	
	LSVQ0028	PLIER FOR NON ZIF CONNECTOR	
	VFKW0124A	EXTENSION CABLE 14P	
	VUVS0012	EXTENSION CABLE 22P	
	LSUA0017	EXTENSION CABLE 18P	
	LSUA0016	EXTENSION CABLE 10P	
	VUVS0007	EXTENSION CABLE 12P	
	VUVS0015	EXTENSION CABLE 28P	
	LSUA0030	EXTENSION CABLE 11P	
	LSUA0020	EXTENSION CABLE 20P	
	LSVQ0020	CAPSTAN TILT ADJUSTMENT TOOL	
	LSUQ0002	GREASE	
	VFKS0081	GREASE	
	VFK1164LBX1	LIGHT BOX	VED
	VFK1164TCM02	INFINITY LENS (WITH FOCUS CHART)	VED
	VFK1164TAR43	43mm RING	VED
	VFK1164TFCT2	COLOR CONVERSION FILTER (C14)	VED
	LSVQ0021	POST HEIGHT ADJUSTMENT FIXTURE	
	LSUP0017	CAMERA CONNECTING CABLE	
	VFK1395	232C(M3) I/F CABLE	VED
	VFK1308E	MEASURING BOARD FOR ELECTRICAL ADJUSTMENT	VED
	VJA0941	DC OUTPUT CABLE	VED
	VFK1164TFWC2	WHITE CHART	VED
	VFK1164TFCB2	COLOR BAR CHART	VED
	VFK1164TFGS2	GRAY SCALE CHART	VED

13.3. ELECTRICAL REPLACEMENT PARTS LIST

COMPARISON CHART OF MODELS & MARKS

MODEL	MARK	MODEL	MARK
NV-DS29EG	A	NV-DS30EN	I
NV-DS29EGM	B	NV-DS30ENT	J
NV-DS29B	C	NV-DS30ENC	K
NV-DS29EGE	D	NV-DS30A	L
NV-DS30EG	E	NV-DS50EN	M
NV-DS30EGM	F	NV-DS50ENT	N
NV-DS30B	G	NV-DS50A	O
NV-DS30EGE	H		

PRINTED CIRCUIT BOARD ASSEMBLY

Ref. No.	Part No.	Part Name & Description	Remarks
E10	LSEP8165P1	MAIN C.B.A. (A,B,C,D)	E.S.D.
E10	LSEP8165Q1	MAIN C.B.A. (E,F,G,H)	E.S.D.
E10	LSEP8165R1	MAIN C.B.A. (I,J,K,L)	E.S.D.
E10	LSEP8165S1	MAIN C.B.A. (M,N,O)	E.S.D.
E20	LSEP8183P1	REAR C.B.A. (A,B,C,D,E,F,G,H,I,J,K,L)	E.S.D. RTL
E20	LSEP8183Q1	REAR C.B.A. (M,N,O)	RTL
E30	LSXM0024	MICROPHONE C.B.A.	RTL
E40	LSEP8193A1	FRONT C.B.A.	RTL
E50	LSEP8169B1	ELECTRONIC VIEWFINDER BACK LIGHT C.B.A.	RTL *NOTE
E60	LSEP8188B1	LIQUID CRYSTAL DISPLAY C.B.A.	RTL
E70	LSEQ0639	CCD C.B.A. NR	
E80	LSEP8177C1	TOP OPERATION C.B.A. NR	

13.3.1. REAR C.B.A.

COMPARISON CHART OF MODELS & MARKS

MODEL	MARK	MODEL	MARK
NV-DS29EG	A	NV-DS30EN	I
NV-DS29EGM	B	NV-DS30ENT	J
NV-DS29B	C	NV-DS30ENC	K
NV-DS29EGE	D	NV-DS30A	L
NV-DS30EG	E	NV-DS50EN	M
NV-DS30EGM	F	NV-DS50ENT	N
NV-DS30B	G	NV-DS50A	O
NV-DS30EGE	H		

INTEGRATED CIRCUITS

Ref. No.	Part No.	Part Name & Description	Remarks
IC6701	C0ZBZ0000275	IC, LINEAR (A,B,C,D,E,F,G,H,I,J,K,L)	
IC6701	C0ZBZ0000540	IC, LINEAR (A,B,C,D,E,F,G,H,I,J,K,L)	
IC6701	C1ZBZ0001923	IC, LINEAR (A,B,C,D,E,F,G,H,I,J,K,L)	
IC6702	S814A33AMC-B	IC, CMOS STANDARD LOGIC (A,B,C,D,E,F,G,H,I,J,K,L)	E.S.D.

DIODES

Ref. No.	Part No.	Part Name & Description	Remarks
D1201	RD12S-T1B	DIODE ZENER CHIP 12V	
D1202	RD12S-T1B	DIODE ZENER CHIP 12V	
D6701	MA2S728008	DIODE SI CHIP (A,B,C,D,E,F,G,H,I,J,K,L)	
D6701	B0JCDD000002	DIODE SI CHIP (A,B,C,D,E,F,G,H,I,J,K,L)	
D6701	MA2S72800L	DIODE SI CHIP (A,B,C,D,E,F,G,H,I,J,K,L)	
D7001	B0BD6R800009	DIODE ZENER CHIP 6.8V	
D7002	B0BD6R800009	DIODE ZENER CHIP 6.8V	
D7003	B0BD6R800009	DIODE ZENER CHIP 6.8V	
D7004	RD6.2S	DIODE ZENER CHIP 6.2V	
D7005	B0BD6R800009	DIODE ZENER CHIP 6.8V	
D7006	RD6.2S	DIODE ZENER CHIP 6.2V	

RESISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
R6703	LSRJ0002	VARIABLE RESISTOR (A,B,C,D,E,F,G,H,I,J,K,L)	
R6704	LSRJ0002	VARIABLE RESISTOR (A,B,C,D,E,F,G,H,I,J,K,L)	
R6706	ERJ3GEY0R00V	MGF CHIP 1/16W 0 (M,N,O)	
R6707	ERJ3GEY0R00V	MGF CHIP 1/16W 0 (M,N,O)	
R7001	ERJ3GEYJ331V	MGF CHIP 1/16W 330	
R7003	ERJ3GEYJ561V	MGF CHIP 1/16W 560	

CAPACITORS

Ref. No.	Part No.	Part Name & Description	Remarks
C1201	ECJ1VF1H103Z	C CHIP 50V 0.01UF	
C1202	ECJ1VF1H103Z	C CHIP 50V 0.01UF	
C6701	F1J1A1050002	C CHIP 10V 1UF (A,B,C,D,E,F,G,H,I,J,K,L)	
C6702	ECJ1VB1C104K	C CHIP 16V 0.1UF (A,B,C,D,E,F,G,H,I,J,K,L)	
C6703	ECJ1VB1C104K	C CHIP 16V 0.1UF (A,B,C,D,E,F,G,H,I,J,K,L)	
C6704	ECJ1VB1C104K	C CHIP 16V 0.1UF (A,B,C,D,E,F,G,H,I,J,K,L)	
C6705	ECJ1VB1C104K	C CHIP 16V 0.1UF (A,B,C,D,E,F,G,H,I,J,K,L)	
C6706	ECJ2YB1A105K	C CHIP 10V 1UF (A,B,C,D,E,F,G,H,I,J,K,L)	
C6708	ECJ2YB1A105K	C CHIP 10V 1UF (A,B,C,D,E,F,G,H,I,J,K,L)	
C7001	ECJ1VB1H472K	C CHIP 50V 4700PF	
C7002	ECJ1VB1H472K	C CHIP 50V 4700PF	

FILTERS

Ref. No.	Part No.	Part Name & Description	Remarks
FL1201	J0MAB0000062	FILTER	

COILS

Ref. No.	Part No.	Part Name & Description	Remarks
L6701	ERJ3GEYJ821V	MGF CHIP 1/16W 820 (A,B,C,D,E,F,G,H,I,J,K,L)	
L6702	ERJ3GEYJ821V	MGF CHIP 1/16W 820 (A,B,C,D,E,F,G,H,I,J,K,L)	
L6703	ERJ3GEY0R00V	MGF CHIP 1/16W 0 (A,B,C,D,E,F,G,H,I,J,K,L)	
L6704	ERJ3GEY0R00V	MGF CHIP 1/16W 0 (M,N,O)	
L6705	ERJ3GEY0R00V	MGF CHIP 1/16W 0 (M,N,O)	
L6706	ERJ3GEY0R00V	MGF CHIP 1/16W 0 (M,N,O)	
L6707	VLQ0807K100	COIL CHIP 10UH (A,B,C,D,E,F,G,H,I,J,K,L)	
L7001	J0JBC0000027	FERRITE BEAD CHIP	
L7002	J0JBC0000027	FERRITE BEAD CHIP	
L7003	J0JBC0000027	FERRITE BEAD CHIP	
L7004	J0JBC0000027	FERRITE BEAD CHIP	
L7005	J0JBC0000027	FERRITE BEAD CHIP	

FUSE & PROTECTOR

Ref. No.	Part No.	Part Name & Description	Remarks
IP1201	K5H2022A0008	CIRCUIT PROTECTOR CHIP 32V 2A	⚠
IP1202	K5H1022A0008	CIRCUIT PROTECTOR CHIP 32V 1A	⚠

SWITCHES

Ref. No.	Part No.	Part Name & Description	Remarks
SW1201	ESE22MH4	SWITCH PUSH	

JACKS

Ref. No.	Part No.	Part Name & Description	Remarks
JK6701	K2HZ105E0001	USB MINI JACK SOCKET (M,N,O)	
JK6703	LSJJ0187	MINI JACK SOCKET (A,B,C,D,E,F,G,H,I,J,K,L)	
JK7001	LSYK0830	BATTERY COVER UNIT	
JK7003	K1FB104B0026	DV JACK SOCKET	

MISCELLANEOUS

Ref. No.	Part No.	Part Name & Description	Remarks
731	LSSB0004	BATTERY	

13.3.2. MICROPHONE C.B.A.

TRANSISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
Q4801	2SD1819A0L	TRANSISTOR SI NPN CHIP	*NOTE
Q4801	B1ABCF000020	TRANSISTOR SI NPN CHIP	*NOTE
Q4802	2SD1819A0L	TRANSISTOR SI NPN CHIP	*NOTE
Q4802	B1ABCF000020	TRANSISTOR SI NPN CHIP	*NOTE
Q4803	2SB1218A0L	TRANSISTOR SI PNP CHIP	*NOTE
Q4803	B1ADCF000063	TRANSISTOR SI PNP CHIP	*NOTE
Q4805	2SD1819A0L	TRANSISTOR SI NPN CHIP	*NOTE
Q4805	B1ABCF000020	TRANSISTOR SI NPN CHIP	*NOTE
Q4806	2SB1218A0L	TRANSISTOR SI PNP CHIP	*NOTE
Q4806	B1ADCF000063	TRANSISTOR SI PNP CHIP	*NOTE
Q4808	2SD1819A0L	TRANSISTOR SI NPN CHIP	*NOTE
Q4808	B1ABCF000020	TRANSISTOR SI NPN CHIP	*NOTE
Q4809	2SD1819A0L	TRANSISTOR SI NPN CHIP	*NOTE
Q4809	B1ABCF000020	TRANSISTOR SI NPN CHIP	*NOTE

DIODES

Ref. No.	Part No.	Part Name & Description	Remarks
D4803	MA3J14300L	DIODE SI CHIP	*NOTE
D4803	B0ADCC000004	DIODE SI CHIP	*NOTE

RESISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
R4801	D0HB392ZA002	MGF CHIP 1/16W 3.9K	*NOTE
R4802	D0HB392ZA002	MGF CHIP 1/16W 3.9K	*NOTE
R4803	ERJ3GEYJ104V	MGF CHIP 1/16W 100K	*NOTE
R4804	ERJ3GEYJ363V	MGF CHIP 1/16W 36K	*NOTE
R4805	ERJ3GEYJ822V	MGF CHIP 1/16W 8.2K	*NOTE
R4806	ERJ3GEYJ104V	MGF CHIP 1/16W 100K	*NOTE
R4807	ERJ3GEYJ363V	MGF CHIP 1/16W 36K	*NOTE
R4808	ERJ3GEYJ822V	MGF CHIP 1/16W 8.2K	*NOTE
R4809	ERJ3GEYJ471V	MGF CHIP 1/16W 470	*NOTE
R4810	ERJ3GEYJ103V	MGF CHIP 1/16W 10K	*NOTE
R4811	D0HB154ZA002	MGF CHIP 1/16W 150K	*NOTE
R4812	D0HB563ZA002	MGF CHIP 1/16W 56K	*NOTE
R4813	ERJ3GEYJ122V	MGF CHIP 1/16W 1.2K	*NOTE
R4814	ERJ3GEYJ562V	MGF CHIP 1/16W 5.6K	*NOTE
R4815	ERJ3GEYJ151V	MGF CHIP 1/16W 150	*NOTE
R4817	ERJ3GEYJ471V	MGF CHIP 1/16W 470	*NOTE
R4818	ERJ3GEYJ103V	MGF CHIP 1/16W 10K	*NOTE
R4819	D0HB154ZA002	MGF CHIP 1/16W 150K	*NOTE
R4820	D0HB563ZA002	MGF CHIP 1/16W 56K	*NOTE
R4821	ERJ3GEYJ122V	MGF CHIP 1/16W 1.2K	*NOTE
R4822	ERJ3GEYJ562V	MGF CHIP 1/16W 5.6K	*NOTE
R4823	ERJ3GEYJ151V	MGF CHIP 1/16W 150	*NOTE
R4825	ERJ3GEYJ222V	MGF CHIP 1/16W 2.2K	*NOTE
R4827	ERJ3GEY0R00V	MGF CHIP 1/16W 0	*NOTE
R4830	ERJ3GEYJ563V	MGF CHIP 1/16W 56K	*NOTE
R4831	ERJ3GEYJ332V	MGF CHIP 1/16W 3.3K	*NOTE
R4832	ERJ3GEYJ563V	MGF CHIP 1/16W 56K	*NOTE
R4833	ERJ3GEYJ332V	MGF CHIP 1/16W 3.3K	*NOTE
R4837	ERJ3GEY0R00V	MGF CHIP 1/16W 0	*NOTE
R4838	ERJ3GEY0R00V	MGF CHIP 1/16W 0	*NOTE

CAPACITORS

Ref. No.	Part No.	Part Name & Description	Remarks
C4801	ECJ1VB1H102K	C CHIP 50V 1000PF	*NOTE
C4802	ECJ1VB1H102K	C CHIP 50V 1000PF	*NOTE
C4803	ECJ1VB1C273K	C CHIP 16V 0.027UF	*NOTE
C4804	ECJ1VB1C273K	C CHIP 16V 0.027UF	*NOTE
C4805	F1J1A1050002	C CHIP 10V 1UF	*NOTE
C4806	ECJ1VB1H102K	C CHIP 50V 1000PF	*NOTE
C4807	ECST0GY226	TANTALUM CHIP 4V 22UF	*NOTE
C4808	F1J1A1050002	C CHIP 10V 1UF	*NOTE
C4809	ECJ1VB1H102K	C CHIP 50V 1000PF	*NOTE
C4810	ECST0GY226	TANTALUM CHIP 4V 22UF	*NOTE
C4811	ECST0JY226R	TANTALUM CHIP 6.3V 22UF	*NOTE
C4812	ECJ1VB1H103K	C CHIP 50V 0.01UF	*NOTE
C4813	ECJ1VB1H821K	C CHIP 50V 820PF	*NOTE
C4814	ECJ1VB1H821K	C CHIP 50V 820PF	*NOTE
C4815	ECJ1VB1E223K	C CHIP 25V 0.022UF	*NOTE
C4816	ECJ1VB1E223K	C CHIP 25V 0.022UF	*NOTE
C4817	F1J1A1050002	C CHIP 10V 1UF	*NOTE
C4818	F1J1A1050002	C CHIP 10V 1UF	*NOTE
C4819	ECJ1VB1H222K	C CHIP 50V 0.0022UF	*NOTE
C4820	ECJ1VB1H222K	C CHIP 50V 0.0022UF	*NOTE
C4821	ECUE1C104ZFV	C CHIP 16V 0.1UF	*NOTE

COILS

Ref. No.	Part No.	Part Name & Description	Remarks
L4801	J0JBC0000036	FERRITE BEAD CHIP	*NOTE
L4802	J0JBC0000036	FERRITE BEAD CHIP	*NOTE

FPC CONNECTOR

Ref. No.	Part No.	Part Name & Description	Remarks
FP4801	K1MN07B00022	CONNECTOR 7P	*NOTE

JACKS

Ref. No.	Part No.	Part Name & Description	Remarks
JK4801	K2HC104B0017	STERO MICROPHONE JACK SOCKET	*NOTE

MISCELLANEOUS

Ref. No.	Part No.	Part Name & Description	Remarks
701	LSEK0447	ELECTORIC CONDENSER MICROPHONE UNIT	*NOTE
703	LSMG0111	MICROPHONE DAMPER	*NOTE
705	LSJW0033	FLEXIBLE FLAT CABLE W/OUT PLUG,4.8V	*NOTE

13.3.3. FRONT C.B.A.

TRANSISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
Q6501	XP0150100L	TRANSISTOR COMPLX CMP SI NPN CHIP	*NOTE
Q6502	B1BCEF000003	TRANSISTOR SI PNP CHIP	*NOTE

DIODES

Ref. No.	Part No.	Part Name & Description	Remarks
D6502	SLR7123A50AB	LIGHT EMITTING DIODE	*NOTE

RESISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
R6501	ERJ3GEYJ560V	MGF CHIP 1/16W 56	*NOTE
R6502	ERJ8GEYJ270V	MGF CHIP 1/8W 27	*NOTE
R6503	D0HB122ZA002	MGF CHIP 1/16W 1.2K	*NOTE
R6504	D0HB562ZA002	MGF CHIP 1/16W 5.6K	*NOTE
R6505	D0HB122ZA002	MGF CHIP 1/16W 1.2K	*NOTE
R6506	ERJ3GEYJ821V	MGF CHIP 1/16W 820	*NOTE

CAPACITORS

Ref. No.	Part No.	Part Name & Description	Remarks
C6501	ECST0JY106	TANTALUM CHIP 6.3V 10UF	*NOTE
C6502	ECJ1VF1C104Z	C CHIP 16V 0.1UF	*NOTE
C6503	ECJ1VB1C104K	C CHIP 16V 0.1UF	*NOTE

PIN HEADERS

Ref. No.	Part No.	Part Name & Description	Remarks
P6501	K1KA03A00304	CONNECTOR 3P	*NOTE

FPC CONNECTRO

Ref. No.	Part No.	Part Name & Description	Remarks
FP6501	K1MN10A00030	CONNECTOR 10P	*NOTE

MISCELLANEOUS

Ref. No.	Part No.	Part Name & Description	Remarks
U6501	B3RAD0000039	INFRARED RECEOVER	*NOTE

13.3.4. ELECTRONIC VIEWFINDER BACK LIGHT C.B.A.

TRANSISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
Q951	2SD2216J0L	TRANSISTOR SI NPN CHIP	*NOTE
Q951	2SC4617-R	TRANSISTOR SI NPN CHIP	*NOTE

DIODES

Ref. No.	Part No.	Part Name & Description	Remarks
D951	B3AFB0000016	LIGHT EMITTING DIODE	*NOTE

RESISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
R951	ERJ3GEY0R00V	MGF CHIP 1/16W 0	*NOTE
R952	ERJ3GEY0R00V	MGF CHIP 1/16W 0	*NOTE
R953	ERJ3GEYJ223V	MGF CHIP 1/16W 22K	*NOTE
R954	ERJ3GEYJ103V	MGF CHIP 1/16W 10K	*NOTE
R955	ERJ3GEYJ101V	MGF CHIP 1/16W 100	*NOTE
R956	ERJ3GEYJ102V	MGF CHIP 1/16W 1K	*NOTE
R957	ERJ3GEY0R00V	MGF CHIP 1/16W 0	*NOTE

CAPACITORS

Ref. No.	Part No.	Part Name & Description	Remarks
C952	ECJ1VF1C104Z	C CHIP 16V 0.1UF	*NOTE
C953	ECJ1VF1C104Z	C CHIP 16V 0.1UF	*NOTE
C954	ECJ1VF1C104Z	C CHIP 16V 0.1UF	*NOTE
C955	ECJ1VF1C104Z	C CHIP 16V 0.1UF	*NOTE

FPC CONNECTOR

Ref. No.	Part No.	Part Name & Description	Remarks
FP951	K1MN19B00052	CONNECTOR 19P	*NOTE
FP952	K1MN20B00085	CONNECTOR 20P	*NOTE

13.3.5. LIQUID CRYSTAL DISPLAY C.B.A.

COMPARISON CHART OF MODELS & MARKS

MODEL	MARK	MODEL	MARK
NV-DS29EG	A	NV-DS30EN	I
NV-DS29EGM	B	NV-DS30ENT	J
NV-DS29B	C	NV-DS30ENC	K
NV-DS29EGE	D	NV-DS30A	L
NV-DS30EG	E	NV-DS50EN	M
NV-DS30EGM	F	NV-DS50ENT	N
NV-DS30B	G	NV-DS50A	O
NV-DS30EGE	H		

INTEGRATED CIRCUITS

Ref. No.	Part No.	Part Name & Description	Remarks
IC8001	AN2540FHQ-V	IC, LINEAR	

TRANSISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
Q8001	UNR521200L	TRANSISTOR SI NPN CHIP	
Q8001	B1GBCFLL0012	TRANSISTOR SI NPN CHIP	
Q8002	2SB1462J08	TRANSISTOR SI PNP CHIP	
Q8002	B1ADCF000072	TRANSISTOR SI PNP CHIP	
Q8003	UNR521200L	TRANSISTOR SI NPN CHIP	
Q8003	B1GBCFLL0012	TRANSISTOR SI NPN CHIP	
Q8004	2SB1462J08	TRANSISTOR SI PNP CHIP	
Q8004	B1ADCF000072	TRANSISTOR SI PNP CHIP	
Q8005	2SD1819A0L	TRANSISTOR SI NPN CHIP	
Q8005	B1ABCF000020	TRANSISTOR SI NPN CHIP	
Q8006	2SD1819A0L	TRANSISTOR SI NPN CHIP	
Q8006	B1ABCF000020	TRANSISTOR SI NPN CHIP	
Q8007	UNR521200L	TRANSISTOR SI NPN CHIP	
Q8007	B1GBCFLL0012	TRANSISTOR SI NPN CHIP	
Q8008	2SB1462J08	TRANSISTOR SI PNP CHIP	
Q8008	B1ADCF000072	TRANSISTOR SI PNP CHIP	
Q8009	2SD1819A0L	TRANSISTOR SI NPN CHIP	
Q8009	B1ABCF000020	TRANSISTOR SI NPN CHIP	
Q8010	UNR511400L	TRANSISTOR SI PNP CHIP	
Q8010	B1GDCFJN0011	TRANSISTOR SI PNP CHIP	
Q8011	UNR521200L	TRANSISTOR SI NPN CHIP	
Q8011	B1GBCFLL0012	TRANSISTOR SI NPN CHIP	
Q8012	XP0460100L	TRANSISTOR COMPLX CMP SI NPN CHIP	
Q8012	HN1B04FU-GTR	TRANSISTOR COMPLX CMP SI NPN CHIP	
Q8014	XP0460100L	TRANSISTOR COMPLX CMP SI NPN CHIP	
Q8014	HN1B04FU-GTR	TRANSISTOR COMPLX CMP SI NPN CHIP	
Q8104	2SD11190RL	TRANSISTOR SI NPN CHIP	
Q8104	B1ABPC000007	TRANSISTOR SI NPN CHIP	
Q8105	2SD11190RL	TRANSISTOR SI NPN CHIP	
Q8105	B1ABPC000007	TRANSISTOR SI NPN CHIP	
Q8106	2SD1819A0L	TRANSISTOR SI NPN CHIP	
Q8106	B1ABCF000020	TRANSISTOR SI NPN CHIP	
Q8107	2SD1819A0L	TRANSISTOR SI NPN CHIP	
Q8107	B1ABCF000020	TRANSISTOR SI NPN CHIP	

DIODES

Ref. No.	Part No.	Part Name & Description	Remarks
D8001	MAZ80680LL	DIODE ZENER CHIP 6.8V	
D8101	MA3J741E0L	DIODE SI CHIP	

RESISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
R8001	ERJ3GEYJ223V	MGF CHIP 1/16W 22K	
R8003	ERJ3GEYJ223V	MGF CHIP 1/16W 22K	
R8004	ERJ3GEYJ102V	MGF CHIP 1/16W 1K	
R8005	ERJ3GEYJ102V	MGF CHIP 1/16W 1K	
R8006	ERJ3GEYJ102V	MGF CHIP 1/16W 1K	
R8007	ERJ3GEY0R00V	MGF CHIP 1/16W 0	
R8008	ERJ3GEYJ102V	MGF CHIP 1/16W 1K	
R8009	ERJ3GEYJ102V	MGF CHIP 1/16W 1K	
R8010	ERJ3GEYJ102V	MGF CHIP 1/16W 1K	
R8011	ERJ3GEYJ102V	MGF CHIP 1/16W 1K	
R8012	ERJ3GEYJ102V	MGF CHIP 1/16W 1K	
R8013	ERJ3GEYJ102V	MGF CHIP 1/16W 1K	
R8014	ERJ3GEYJ223V	MGF CHIP 1/16W 22K	
R8016	ERJ3GEYJ472V	MGF CHIP 1/16W 4.7K	
R8017	ERJ3GEYJ223V	MGF CHIP 1/16W 22K	
R8019	ERJ3GEYJ222V	MGF CHIP 1/16W 2.2K	
R8021	ERJ3GEYJ102V	MGF CHIP 1/16W 1K	
R8022	ERJ3GEYJ562V	MGF CHIP 1/16W 5.6K	
R8023	ERJ3GEY0R00V	MGF CHIP 1/16W 0	
R8024	ERJ3GEYJ682V	MGF CHIP 1/16W 6.8K	
R8025	ERJ3GEYJ153V	MGF CHIP 1/16W 15K	
R8027	ERJ3GEY0R00V	MGF CHIP 1/16W 0	
R8028	ERJ3GEY0R00V	MGF CHIP 1/16W 0	
R8029	ERJ3GEY0R00V	MGF CHIP 1/16W 0	
R8034	ERJ3GEYJ101V	MGF CHIP 1/16W 100	
R8035	ERJ3GEYJ101V	MGF CHIP 1/16W 100	
R8036	ERJ3GEYJ101V	MGF CHIP 1/16W 100	
R8037	ERJ3GEYJ102V	MGF CHIP 1/16W 1K	
R8038	ERJ3GEYJ393V	MGF CHIP 1/16W 39K	
R8039	ERJ3GEYJ393V	MGF CHIP 1/16W 39K	
R8040	ERJ3GEY0R00V	MGF CHIP 1/16W 0	
R8044	ERJ3GEYJ274V	MGF CHIP 1/16W 270K	
R8045	ERJ3GEYJ124V	MGF CHIP 1/16W 120K	
R8046	ERJ3GEYJ103V	MGF CHIP 1/16W 10K	
R8047	ERJ3GEYJ103V	MGF CHIP 1/16W 10K	
R8049	ERJ3GEYJ473V	MGF CHIP 1/16W 47K	
R8104	ERJ3GEYJ332V	MGF CHIP 1/16W 3.3K	
R8105	ERJ3GEYJ473V	MGF CHIP 1/16W 47K	
R8106	ERJ3GEYJ473V	MGF CHIP 1/16W 47K	
R8108	ERJ3GEYJ473V	MGF CHIP 1/16W 47K	
R8109	ERJ3GEYJ223V	MGF CHIP 1/16W 22K	
R8110	ERJ3GEYJ223V	MGF CHIP 1/16W 22K	
R8111	ERJ3GEYJ223V	MGF CHIP 1/16W 22K	

CAPACITORS

Ref. No.	Part No.	Part Name & Description	Remarks
C8001	ECJ2YB1C474K	C CHIP 16V 0.47UF	
C8002	ECUV0J105KBV	C CHIP 6.3V 1UF	
C8003	ECUV0J105KBV	C CHIP 6.3V 1UF	
C8004	ECUV0J105KBV	C CHIP 6.3V 1UF	
C8005	F3F0J226A001	ELECTROLYTIC CHIP 6.3V 22UF	
C8006	ECUE1H103KBV	C CHIP 50V 0.01UF	
C8007	F1K1C105A023	C CHIP 16V 1UF	
C8008	ECJ1VB1C104K	C CHIP 16V 0.1UF	
C8009	ECJ2YF1C225Z	C CHIP 16V 2.2UF	
C8010	ECST0JY106	TANTALUM CHIP 6.3V 10UF	
C8011	ECJ2YF1C225Z	C CHIP 16V 2.2UF	
C8012	ECJ2YF1C225Z	C CHIP 16V 2.2UF	
C8013	ECJ1VB1H152K	C CHIP 50V 0.0015UF	
C8014	ECJ2YB0J225K	C CHIP 6.3V 2.2UF	
C8015	ECJ2YF1C225Z	C CHIP 16V 2.2UF	
C8016	F1K1C2250005	C CHIP 16V 2.2UF	
C8017	ECJ2YF1C225Z	C CHIP 16V 2.2UF	
C8019	ECJ1VB1C104K	C CHIP 16V 0.1UF	
C8021	ECJ1VC1H471J	C CHIP 50V 470PF	
C8022	ECJ1VC1H471J	C CHIP 50V 470PF	
C8023	ECJ1VC1H471J	C CHIP 50V 470PF	
C8107	ECUV1A106KBP	C CHIP 10V 10UF	
C8108	ECHU1H333JB5	POLYESTER CHIP 50V 0.033UF	
C8109	LSCUCAD150J	C CHIP 2KV 15PF	
C8110	LSCUCAD220J	C CHIP 2KV 22PF	
C8113	ECJ1VB1C104K	C CHIP 16V 0.1UF	
C8114	ECUV0J105KBV	C CHIP 6.3V 1UF	
C8115	ECST0JY106	TANTALUM CHIP 6.3V 10UF	
C8116	ECJ1VF1C104Z	C CHIP 16V 0.1UF	
C8117	F1J1C1050011	C CHIP 16V 1UF	
C8118	ECJ1VF1C104Z	C CHIP 16V 0.1UF	

COILS

Ref. No.	Part No.	Part Name & Description	Remarks
L8001	G1C150J00005	COIL CHIP 15UH	
L8002	G1C150J00005	COIL CHIP 15UH	
L8003	G1C150J00005	COIL CHIP 15UH	
L8004	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
L8005	G1C150J00005	COIL CHIP 15UH	
L8103	G1C680M00005	CHOKE COIL	
L8104	G1A100ZA0002	CHOKE COIL 10UH	

FPC CONNECTOR

Ref. No.	Part No.	Part Name & Description	Remarks
FP8001	K1MN25B00037	CONNECTOR 25P	
FP8002	K1MN24B00077	CONNECTOR 24P	

FUSE & PROTECTOR

Ref. No.	Part No.	Part Name & Description	Remarks
PR8101	K5H1022A0008	CIRCUIT PROTECTOR CHIP 32V 1A	

TRANSFORMER

Ref. No.	Part No.	Part Name & Description	Remarks
T8101	ETJ11K94AM	TRANSFORMER	

MISCELLANEOUS

Ref. No.	Part No.	Part Name & Description	Remarks
721	VMZW0660	INSULATION SHEET,PLASTIC	

13.3.6. ELECTRICAL PARTS LOCATED ON CHASSIS

COMPARISON CHART OF MODELS & MARKS

MODEL	MARK	MODEL	MARK
NV-DS29EG	A	NV-DS30EN	I
NV-DS29EGM	B	NV-DS30ENT	J
NV-DS29B	C	NV-DS30ENC	K
NV-DS29EGE	D	NV-DS30A	L
NV-DS30EG	E	NV-DS50EN	M
NV-DS30EGM	F	NV-DS50ENT	N
NV-DS30B	G	NV-DS50A	O
NV-DS30EGE	H		

Ref. No.	Part No.	Part Name & Description	Remarks
735	LSEP8172A1	SD HOLDER UNIT NR (M,N,O)	

14. SCHEMATIC DIAGRAMS FOR PRINTING WITH LETTER SIZE

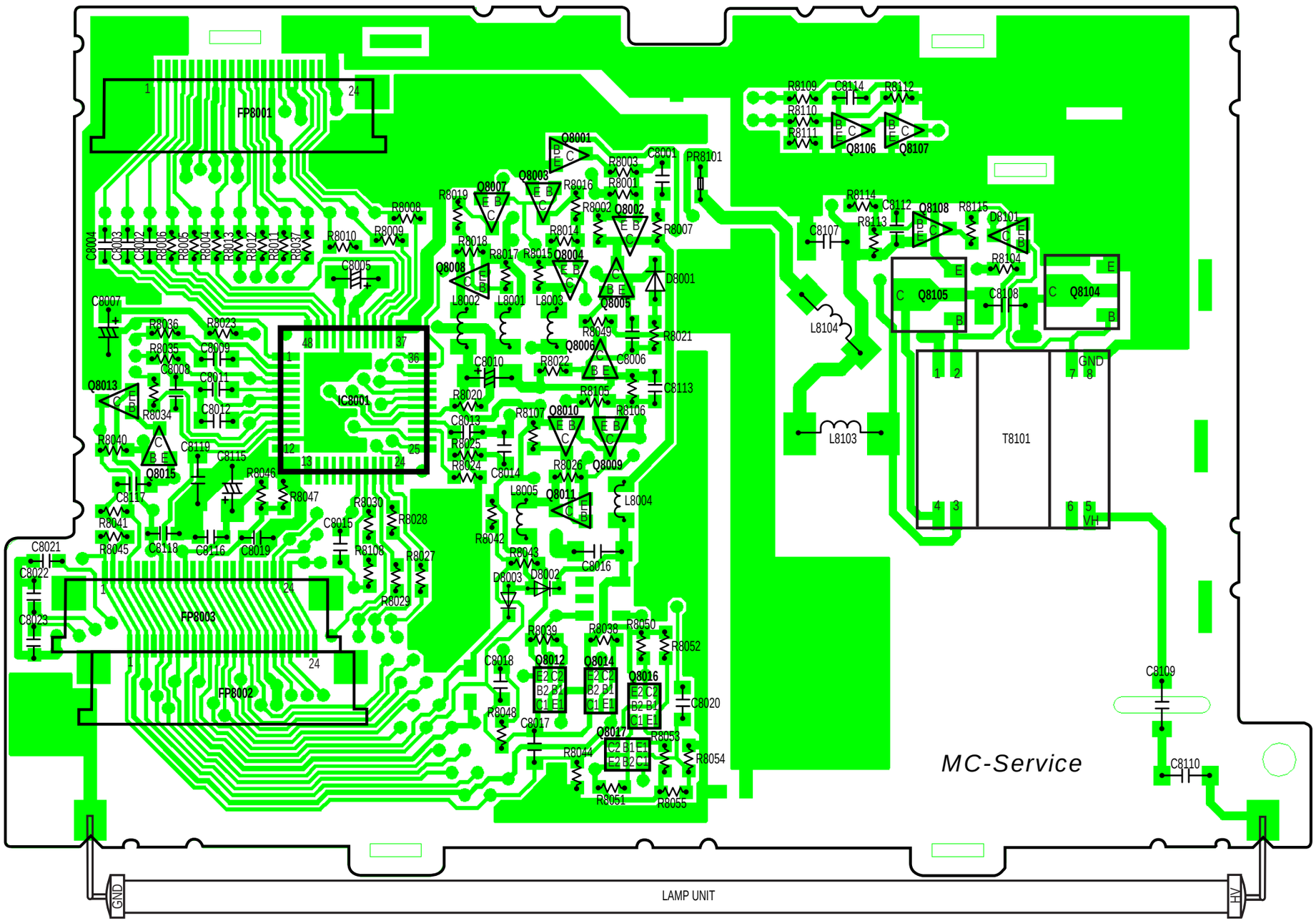
LCD C.B.A. LSEP8188B1

NOTE:
CIRCUIT BOARD LAYOUT SHOWS COMPONENTS INSTALLED FOR VARIOUS MODELS.
FOR PROPER PARTS CONTENT FOR THE MODEL YOU ARE SERVICING,
PLEASE REFER TO THE SCHEMATIC DIAGRAM AND PARTS LIST.

NOTE:
CIRCUIT BOARD LAYOUT INCLUDES COMPONENTS WHICH ARE NOT USED.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

(FOIL SIDE)



(DUAL PATTERNS)

LCD C.B.A. LSEP8188B1
NV-DS29EG/NV-DS29EGM/NV-DS29B/NV-DS29EGE/NV-DS30EG/NV-DS30EGM/NV-DS30B/NV-DS30EGE/
NV-DS30EN/NV-DS30ENT/NV-DS30ENC/NV-DS30A/NV-DS50EN/NV-DS50ENT/NV-DS50A

MAIN PARTS PORTION

STEP No.	Ref. No.	PART	Section No.	REMOVE	NOTE
1	-	Cassette Cover Ass'y	1	6(L-1)	1
2	(11)	Side Case L Unit	1	6(404)-1, (L-2), P1, FP6, FP9	2,3
3	-	Front Case Ass'y	1	2(404)-3, FP1	-
4	(E10)	Main C.B.A.	1	(510)-4, 3(L-3), B1, FP2, FP3, FP4, FP5, FP7, FP8, FP10, FP301, FP701	4
5	(E20)	Rear C.B.A.	1	2(404)-5, (510)-5	5
6	-	Lens Ass'y	1	-----	6
7	-	Top Case & EVF Ass'y	1	2(404)-6	7
8	(1)	Mechanism Chassis Ass'y	1	(404)-7, 3(L-4)	8
9	-	Side Case R Ass'y	1	-----	-

A B C D E F

How to read chart shown above:

A: Order of Procedure steps.
When reassembling, perform step(s) in reverse order.

B: Ref No.

C: Part to be removed or installed.

D: Section No.

E: Identification of part to be removed, unhooked, unlocked, released, unplugged, unclamped, or unsoldered.
3(404) = 3 Screws (404), 2(L-1) = 2 Looking Tabs (L-1)

F: Refer to "Notes in chart."

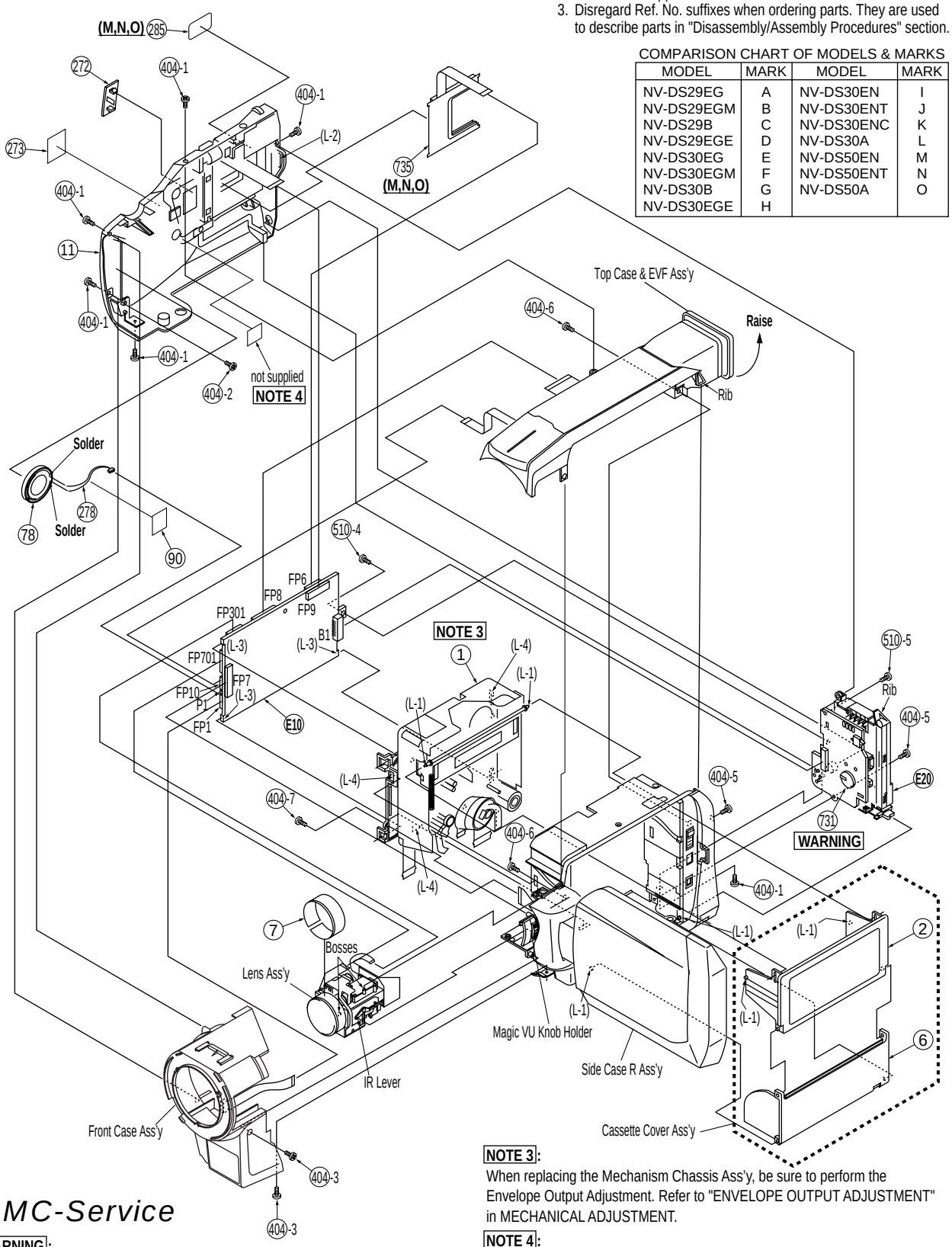
❶ MAIN PARTS SECTION

Note:

1. Parts with no Ref. No. in "EXPLODED VIEW" are not supplied. And some Ref. No. will be skipped. Be sure to make your orders of replacement parts according to the parts list.
2. The parts indicated by the dotted line ⬚ are for Ass'y only and are not supplied.
3. Disregard Ref. No. suffixes when ordering parts. They are used to describe parts in "Disassembly/Assembly Procedures" section.

COMPARISON CHART OF MODELS & MARKS

MODEL	MARK	MODEL	MARK
NV-DS29EG	A	NV-DS30EN	I
NV-DS29EGM	B	NV-DS30ENT	J
NV-DS29B	C	NV-DS30ENC	K
NV-DS29EGE	D	NV-DS30A	L
NV-DS30EG	E	NV-DS50EN	M
NV-DS30EGM	F	NV-DS50ENT	N
NV-DS30B	G	NV-DS50A	O
NV-DS30EGE	H		



MC-Service

WARNING:

DANGER OF EXPLOSION IF BATTERY IS INCORRECTLY REPLACED.
REPLACE ONLY WITH THE SAME OR EQUIVALENT TYPE.

NOTE 3:

When replacing the Mechanism Chassis Ass'y, be sure to perform the Envelope Output Adjustment. Refer to "ENVELOPE OUTPUT ADJUSTMENT" in MECHANICAL ADJUSTMENT.

NOTE 4:

In early products, a sheet is used. When replacing the Side Case L Unit, it is not neccessary to place the sheet.

FRONT CASE PORTION & LAMP PORTION

STEP No.	Ref. No.	PART	Section No.	REMOVE	NOTE
1	⑧③	Lens Hood	❷	3④④-1	-
2	⑧④	Lens Ring	❷	-----	-
3	E40	Front C.B.A.	❷	④④-2, P6501	-
4	⑧⑨	Front ESD Angle	❷	(L-1)	-
5	⑧②	Infrared Panel	❷	2(L-2)	-
6	⑧①	Front Case	❷	-----	-

A B C D E F

How to read chart shown above:

A: Order of Procedure steps.
When reassembling, perform steps(s) in reverse order.
B: Ref No.
C: Part to be removed or installed.
D: Section No.
E: Identification of part to be removed, unhooked, unlocked, released, unplugged, unclamped, or unsoldered.
3④④ = 3 Screws ④④, 2(L-1) = 2 Looking Tabs (L-1)
F: Refer to "Notes in chart."

STEP No.	Ref. No.	PART	Section No.	REMOVE	NOTE
1	②⑧①	Light Protector	❷	3(L-3)	-
2	②⑧②	Light Reflector	❷	2④④-3	-
3	②⑧④	Lamp Socket Unit	❷	-----	-
4	②⑧③	Lamp	❷	-----	9

A B C D E F

How to read chart shown above:

A: Order of Procedure steps.
When reassembling, perform steps(s) in reverse order.
B: Ref No.
C: Part to be removed or installed.
D: Section No.
E: Identification of part to be removed, unhooked, unlocked, released, unplugged, unclamped, or unsoldered.
3④④ = 3 Screws ④④, 2(L-1) = 2 Looking Tabs (L-1)
F: Refer to "Notes in chart."

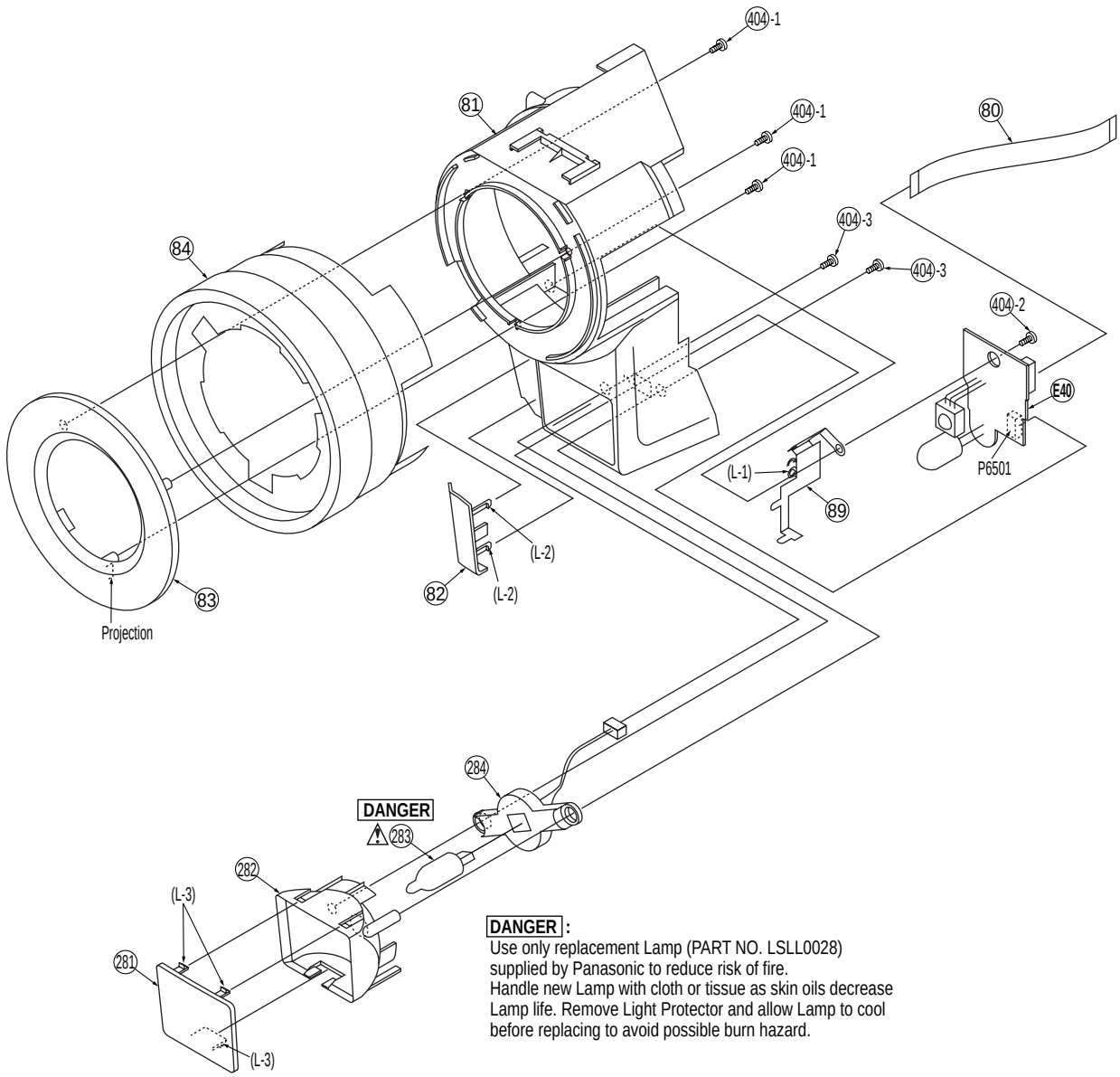
❷ FRONT CASE SECTION

Note:

1. Parts with no Ref. No. in "EXPLODED VIEW" are not supplied. And some Ref. No. will be skipped. Be sure to make your orders of replacement parts according to the parts list.
2. The parts indicated by the dotted line ⬚ are for Ass'y only and are not supplied.
3. Disregard Ref. No. suffixes when ordering parts. They are used to describe parts in "Disassembly/Assembly Procedures" section.

IMPORTANT SAFTY NOTICE:

COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.



DANGER :
Use only replacement Lamp (PART NO. LSLL0028) supplied by Panasonic to reduce risk of fire.
Handle new Lamp with cloth or tissue as skin oils decrease Lamp life. Remove Light Protector and allow Lamp to cool before replacing to avoid possible burn hazard.

CCD PORTION & LENS PORTION

STEP No.	Ref. No.	PART	Section No.	REMOVE	NOTE
1	E70	CCD C.B.A.	3	2422	10
2	66	Filter Rubber	3	-----	10
3	22	Optical Filter	3	-----	10

A B C D E F

How to read chart shown above:

A: Order of Procedure steps.
When reassembling, perform steps(s) in reverse order.
B: Ref No.
C: Part to be removed or installed.
D: Section No.
E: Identification of part to be removed, unhooked, unlocked, released, unplugged, unclamped, or unsoldered.
3404 = 3 Screws 404, 2(L-1) = 2 Looking Tabs (L-1)
F: Refer to "Notes in chart."

STEP No.	Ref. No.	PART	Section No.	REMOVE	NOTE
1	69	Focus Motor Unit	3	2507, Unsolder	-
2	68	Zoom Motor Unit	3	3507, Unsolder	11

A B C D E F

How to read chart shown above:

A: Order of Procedure steps.
When reassembling, perform steps(s) in reverse order.
B: Ref No.
C: Part to be removed or installed.
D: Section No.
E: Identification of part to be removed, unhooked, unlocked, released, unplugged, unclamped, or unsoldered.
3404 = 3 Screws 404, 2(L-1) = 2 Looking Tabs (L-1)
F: Refer to "Notes in chart."

❸ CCD AND LENS SECTION

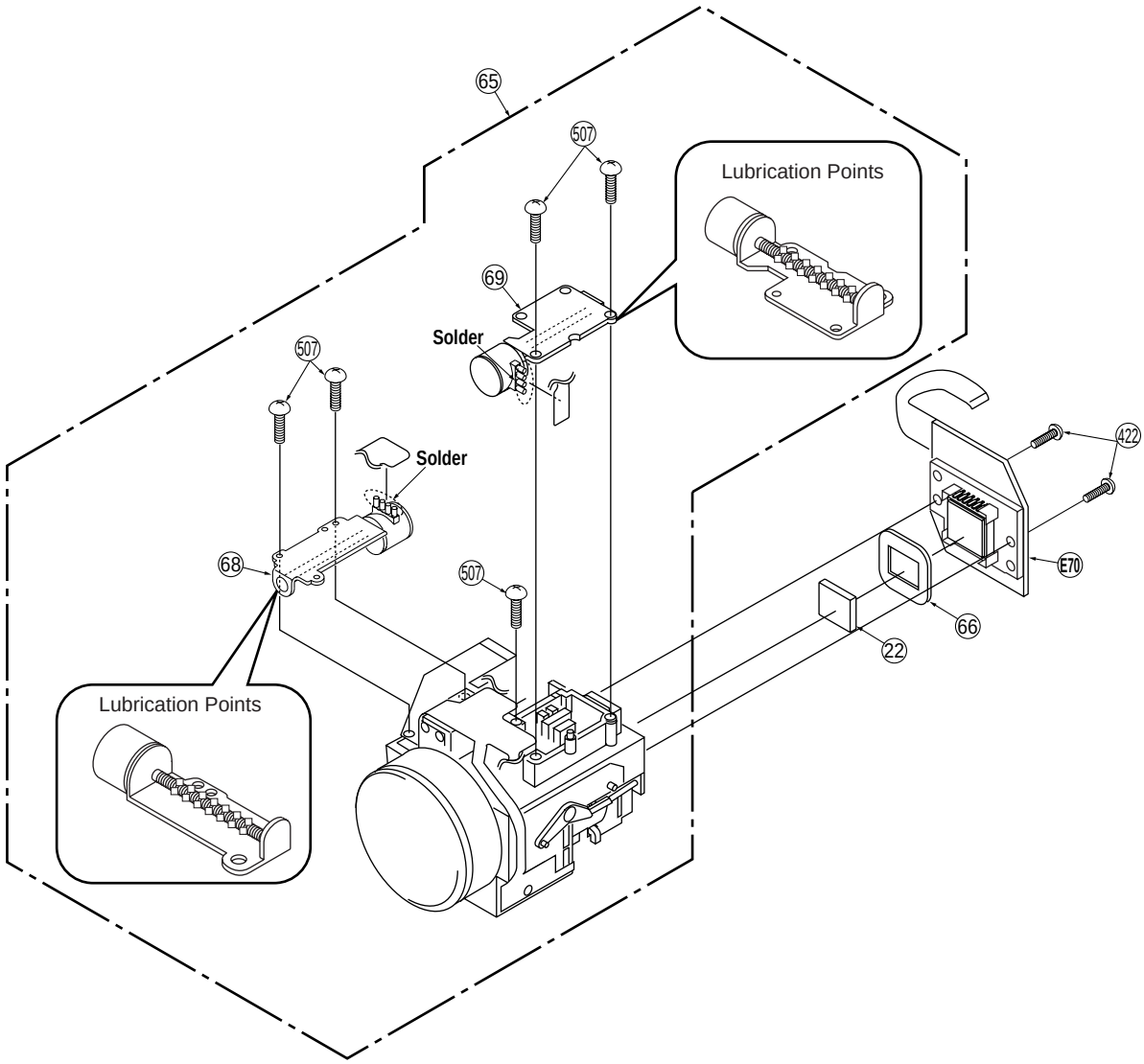
Note:

1. Parts with no Ref. No. in "EXPLODED VIEW" are not supplied. And some Ref. No. will be skipped. Be sure to make your orders of replacement parts according to the parts list.
2. The parts indicated by the dotted line ⬚ are for Ass'y only and are not supplied.
3. Disregard Ref. No. suffixes when ordering parts. They are used to describe parts in "Disassembly/Assembly Procedures" section.

LUBRICATION POINTS

When the marked parts are replaced, apply the recommended lubricants or adhesive for better maintenance of the unit.

Mark	Kind of Lubricant	Availability	Part Number
□□□	Grease	Availability from Factroy	LSUQ0002



TOP CASE PORTION & EVF PORTION

STEP No.	Ref. No.	PART	Section No.	REMOVE	NOTE
1	E80	Top Operation C.B.A.	4	4(416), P001	-
2	E30	Microphone C.B.A.	4	(404)	-
3	50	EVF Unit	4	3(L-1)	12

A B C D E F

How to read chart shown above:

A: Order of Procedure steps.
When reassembling, perform steps(s) in reverse order.
B: Ref No.
C: Part to be removed or installed.
D: Section No.
E: Identification of part to be removed, unhooked, unlocked, released, unplugged, unclamped, or unsoldered.
3(404) = 3 Screws (404), 2(L-1) = 2 Looking Tabs (L-1)
F: Refer to "Notes in chart."

Note:
When disassembling or reassembling, make sure that no dust gets in EVF Unit.

STEP No.	Ref. No.	PART	Section No.	REMOVE	NOTE
1	-	EVF Case Ass'y	4	(402), FP951	13
2	40	Eye Cap	4	-----	-
3	60	EVF Protect A	4	4(L-2)	-
4	E50	EVF Back Light C.B.A.	4	2(L-3), FP952	-
	44	LED Holder		2(L-4)	
	57	LED Diffusion Sheet		2(L-5)	
	54	LCD Panel		-----	
	276	Protect Plate B		-----	
	274	EVF Mask		-----	
5	58	Protect Plate A	4	-----	-
6	56	Lens	4	(L-6)	14
	55	Lens Holder		-----	
7	53	Eye Sight Lever A	4	(402)	14
8	52	Eye Sight Lever B	4	-----	14
9	59	EVF Protect B	4	-----	-

A B C D E F

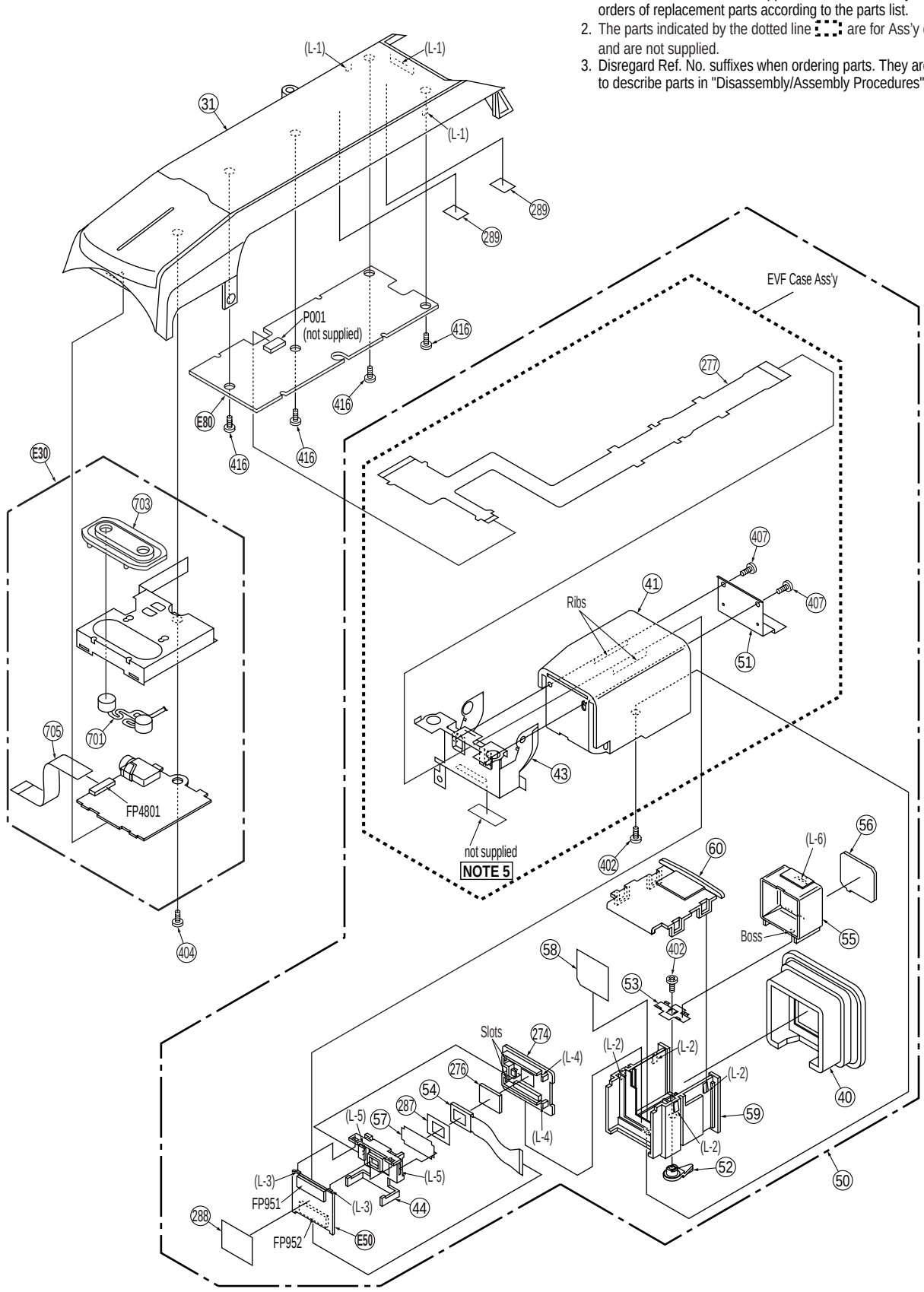
How to read chart shown above:

A: Order of Procedure steps.
When reassembling, perform steps(s) in reverse order.
B: Ref No.
C: Part to be removed or installed.
D: Section No.
E: Identification of part to be removed, unhooked, unlocked, released, unplugged, unclamped, or unsoldered.
3(404) = 3 Screws (404), 2(L-1) = 2 Looking Tabs (L-1)
F: Refer to "Notes in chart."

❹ TOP CASE AND EVF SECTION

Note:

1. Parts with no Ref. No. in "EXPLODED VIEW" are not supplied. And some Ref. No. will be skipped. Be sure to make your orders of replacement parts according to the parts list.
2. The parts indicated by the dotted line ⬚ are for Ass'y only and are not supplied.
3. Disregard Ref. No. suffixes when ordering parts. They are used to describe parts in "Disassembly/Assembly Procedures" section.



NOTE 5:
In early products, a sheet is used. When replacing the EVF Angle Unit, do not place the sheet.

MC-Service

H G F E D C B A

1 2 3 4 5 6

SIDE CASE R PORTION & LCD PORTION

STEP No.	Ref. No.	PART	Section No.	REMOVE	NOTE
1	(261)	Front Cover	5	(404)	19
2	-	LCD Case Ass'y	5	(404), (509)	15
3	(72)	Tripod Frame	5	(402)	-

A B C D E F

How to read chart shown above:

A: Order of Procedure steps.
When reassembling, perform steps(s) in reverse order.
B: Ref No.
C: Part to be removed or installed.
D: Section No.
E: Identification of part to be removed, unhooked, unlocked, released, unplugged, unclamped, or unsoldered.
3(404) = 3 Screws (404), 2(L-1) = 2 Looking Tabs (L-1)
F: Refer to "Notes in chart."

STEP No.	Ref. No.	PART	Section No.	REMOVE	NOTE
1	(94)	LCD Cace A Unit	5	2 (403), 9(L-1)	-
2	(96)	LCD Shaft Unit	5	FP8001	-
3	(95)	LCD Case B	5	(404)	16
4	(E60)	LCD C.B.A.	5	3(L-2), FP8002, Unsolder	17
5	(98)	LCD Panel Unit	5	8(L-3)	17
6	(99)	Lead Light Panel Unit	5	-----	17
7	(100)	Lamp Unit	5	3(L-4), LCD Sheet Unit	18

A B C D E F

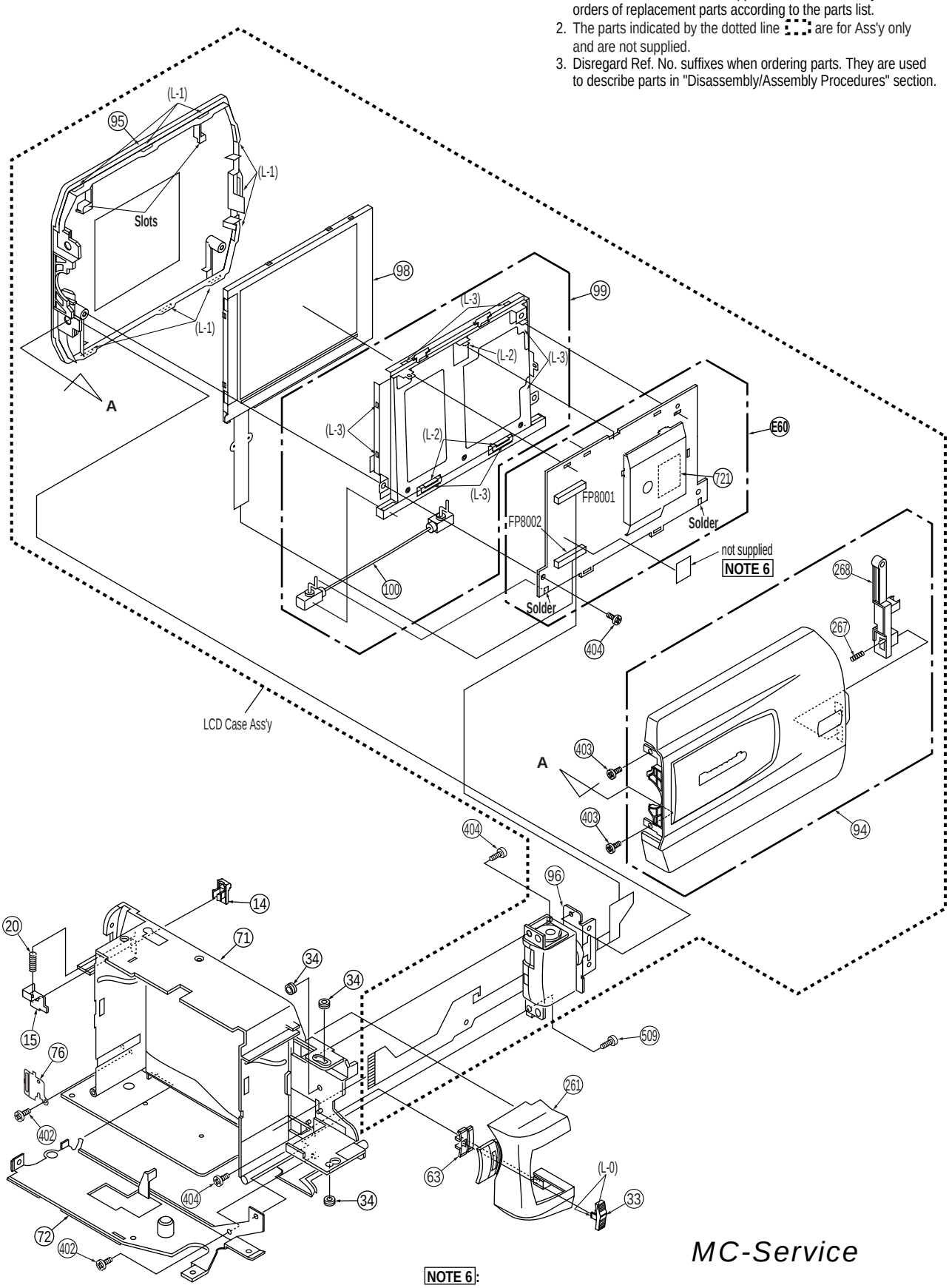
How to read chart shown above:

A: Order of Procedure steps.
When reassembling, perform steps(s) in reverse order.
B: Ref No.
C: Part to be removed or installed.
D: Section No.
E: Identification of part to be removed, unhooked, unlocked, released, unplugged, unclamped, or unsoldered.
3(404) = 3 Screws (404), 2(L-1) = 2 Looking Tabs (L-1)
F: Refer to "Notes in chart."

❺ SIDE CASE R AND LCD SECTION

Note:

1. Parts with no Ref. No. in "EXPLODED VIEW" are not supplied. And some Ref. No. will be skipped. Be sure to make your orders of replacement parts according to the parts list.
2. The parts indicated by the dotted line ⬚ are for Ass'y only and are not supplied.
3. Disregard Ref. No. suffixes when ordering parts. They are used to describe parts in "Disassembly/Assembly Procedures" section.



MC-Service

NOTE 6:
In early products, a sheet is used. When servicing, it is not neccessary to place the sheet.

Notes in chart

1. **Removal of Cassette Cover Ass'y**
   CAUTION:
   Be careful not to apply any pressure to the Garage Unit of the Mechanism Chassis Ass'y.
   Remove it in the order shown below.
   1) Open the LCD.
   2) Slide the EJECT Switch with the power supplied.
      Note:
      If it doesn't, eject manually. Refer to "METHOD FOR EJECTING WITH POWER OFF."

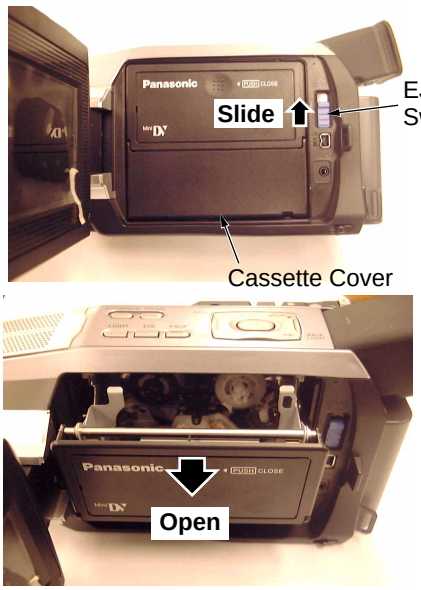


Fig. D2-1

3) Push the Cassette Cover to release the Locking Tab (L-1a) as shown.

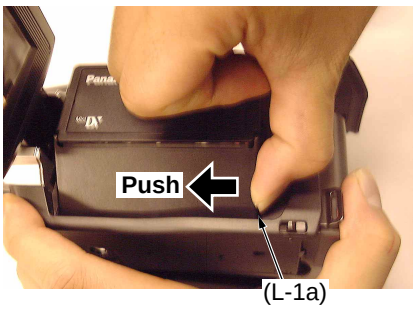


Fig. D2-2

4) Push the Cassette Cover to release the Locking Tab (L-1b).

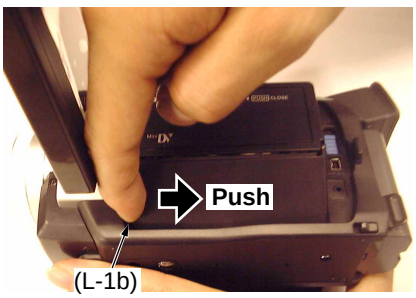


Fig. D2-3

5) Push the both side of the Cassette Cover to release the Locking Tabs (L-1c) and (L-1d) from the slots of the Side Case R.

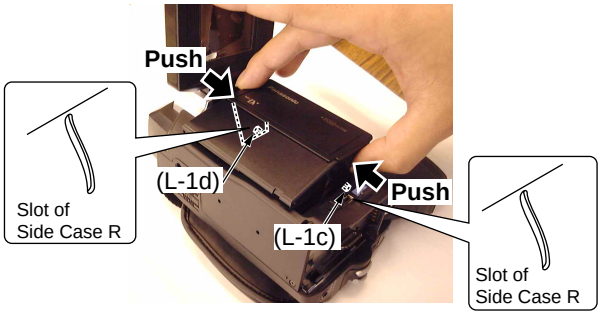


Fig. D2-4

6) Open the Cassette Cover as shown.

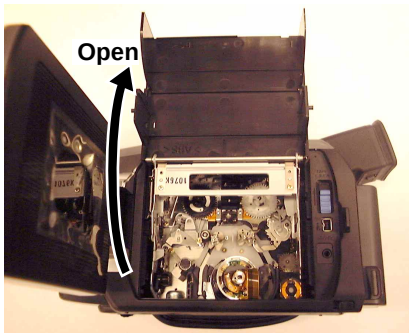


Fig. D2-5

7) Pinch and pull the Cassette Cover to release the Locking Tab (L-1e) while holding the Garage Unit carefully as shown. Then, release the Locking Tab (L-1f).
   CAUTION:
   Do not break the Cassette Cover.

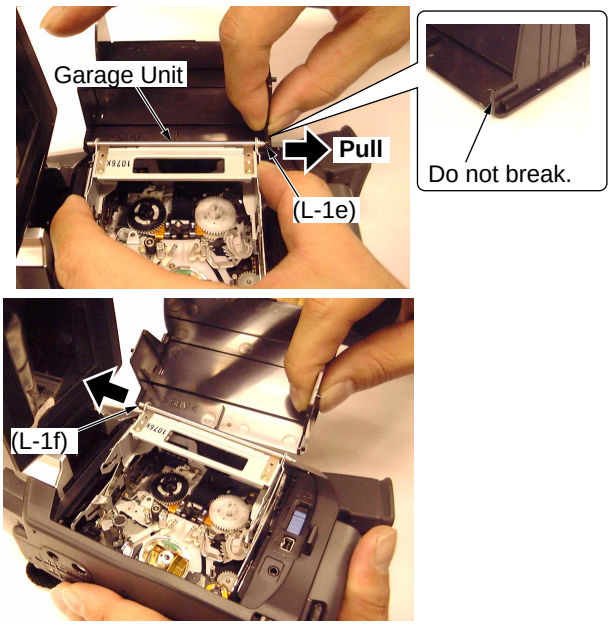


Fig. D2-6

Installation of Cassette Cover Ass'y
CAUTION:
Be careful not to apply any pressure to the Garage Unit of the Mechanism Chassis Ass'y.
Install it in the order shown below.

1) Set the Locking Tabs (L-1f). Then, pinch and pull the Cassette Cover to set the Locking Tab (L-1e) while holding the Garage Unit carefully. Then, put the Cassette Cover on the Mechanism Chassis Ass'y.
   CAUTION:
   Do not break the Cassette Cover.

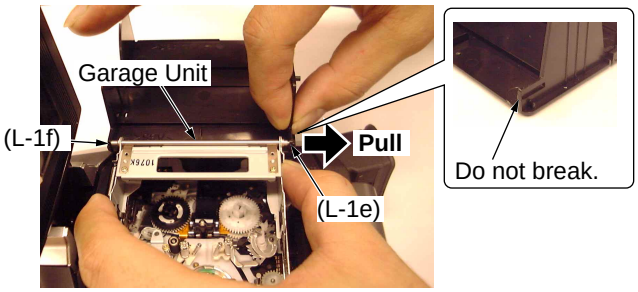


Fig. D2-7

2) Push the both side of the Cassette Cover to set the Locking Tabs (L-1c) and (L-1d) to slots of the Side Case R.

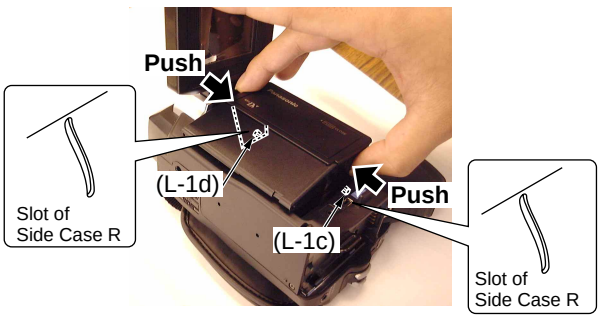


Fig. D2-8

3) Push down the upper portion of the Cassette Cover to close as shown.

Fig. D2-9

4) Push down the lower portion of the Cassette Cover to set Locking Tabs (L-1a) and (L-1b).

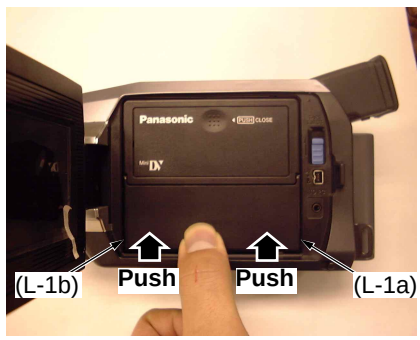


Fig. D2-10

2. **Removal of Side Case L Unit**
Take care not to damage the F.P.C.s or the Speaker Cable.
1) After removing the 6 Screws (404-1), release the Portion A of the Side Case L Unit at first. Then, release the Phone Jack of the Rear C.B.A.
2) Disconnect the Speaker Cable and the F.P.C.s from the Connectors P1, FP6 and FP9.

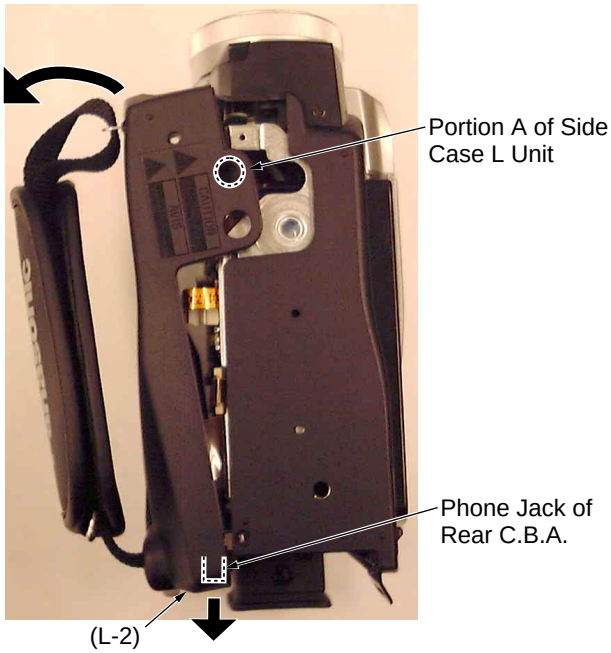


Fig. D3

Installation of Zoom Switch F.P.C. of Side Case L Unit
When connecting the Zoom Switch F.P.C. to the Connector FP9 on the Main C.B.A., make it as shown.

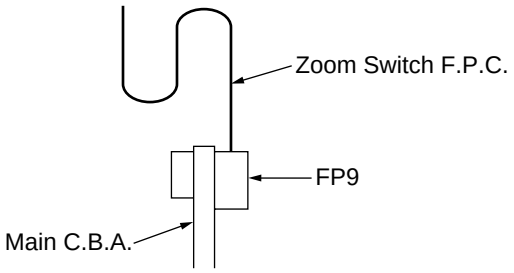


Fig. D4

3. **Removal of Speaker**
1) Open the Hand Strap and release it from the hole of the Strap Angle front.
2) Remove the Screw (404-2).
3) Remove the Strap Angle front and the Speaker Angle. Then, remove the Speaker.

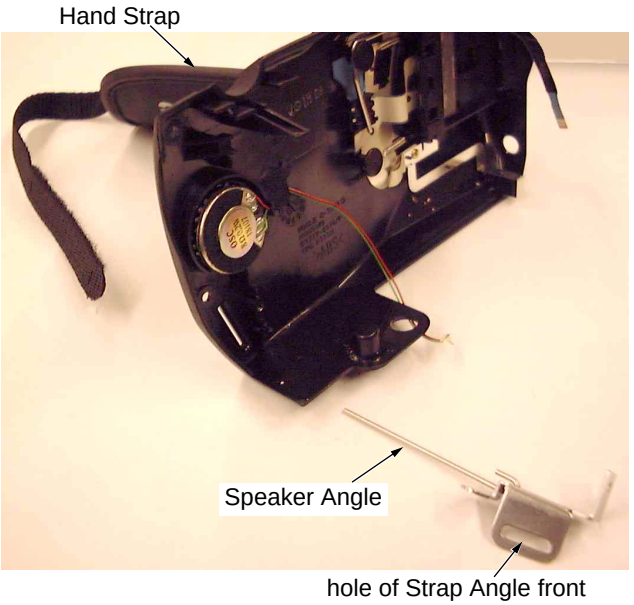


Fig. D5

4. **Installation of Main C.B.A.**
Take care not to damage the Flexible Cables.
1) Connect the Flexible Cables to the connectors on the Main C.B.A, verifying that the direction of the Flexible Cables is correct. Refer to "REMOVAL/INSTALLATION OF F.P.C. FROM NON ZIF (Zero Insertion Force) CONNECTOR."

5. **Removal/Installation of Rear C.B.A.**
When removing/installing the Rear C.B.A., raise the EVF Ass'y.

6. **Installation of Lens Ass'y**
   Install the Lens Ass'y so that the IR Lever is set to the Magic VU Knob Holder.

Fig. D6

7. **Removal of Top Case & EVF Ass'y**
   To remove the Screw (404-6), raise the EVF Ass'y.
   Installation of Top Case & EVF Ass'y
   Secure the Rib of the Top Case & EVF Ass'y to the Side Case R Ass'y.

8. **Replacement of Mechanism Chassis Ass'y**
   When replacing the Mechanism Chassis Ass'y, be sure to perform the Envelope Output Adjustment. Refer to "ENVELOPE OUTPUT ADJUSTMENT" in MECHANICAL ADJUSTMENT.
   Installation of Mechanism Chassis Ass'y
   When installing the Mechanism Chassis Ass'y, be sure to make the Capstan F.P.C. between the Mechanism Chasis Ass'y and the Tripod Frame as shown.

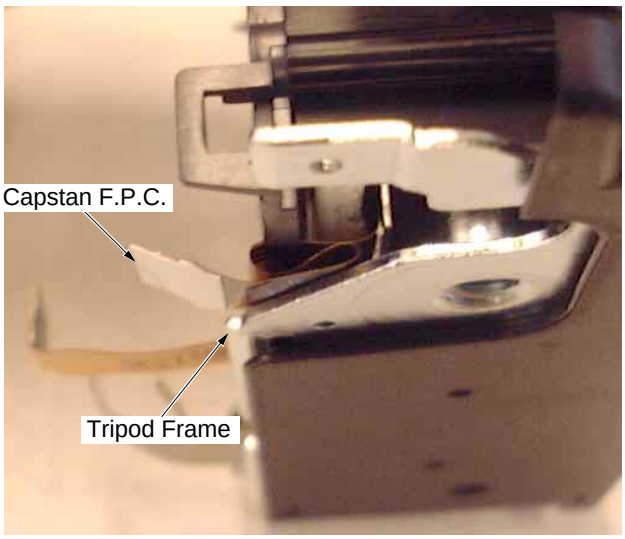


Fig. D7

9. **Replacement of Lamp**
   When replacing the Lamp, refer to "HOW TO REPLACE THE LAMP (LSLL0028) OF BUILT-IN LIGHT" in SERVICE NOTES.

DANGER:
Use only replacement Lamp (PART NO. LSLL0028) supplied by Panasonic to reduce risk of fire.
Handle new Lamp with cloth or tissue as skin oils decrease Lamp life.
Remove Light Protector and allow Lamp to cool before replacing to avoid possible burn hazard.

10. **Removal of CCD C.B.A., Filter Rubber, Optical Filter**
    CAUTION:
    1) When removing the CCD C.B.A., take care that the Optical Filter does not fall out.
    2) Take extreme caution when removing the CCD C.B.A. because it is easily damaged by static electricity. Use a Wrist Strap while removing and installing.
    3) Do not touch the CCD window surface when handling.

    Installation of CCD C.B.A., Filter Rubber, Optical Filter
    Install in order shown below.
    1) Install the Optical Filter correctly.
       Note: Make sure that no dust gets on the Optical Filter and in the Lens Unit. Clean it with lens cleaning paper dampened with lens cleaner if necessary.
    2) Install the Filter Rubber on the Optical Filter correctly as shown below.
       Note: Make sure that no dust gets on the Filter Rubber.
    3) Install the CCD C.B.A. to the Lens Unit. Then, secure the 2 Screws (422) while keeping the CCD C.B.A. pressed toward the upper right corner.
       Note: Do not touch the Lens Surface. Clean their surface with lens cleaning paper dampened with lens cleaner if necessary.

11. **Installation of Zoom Motor Unit**
    Install the Zoom Motor Unit so that the Shaft of the Zoom Motor Unit is set in the Holder. Then, tighten the 3 Screws (507).

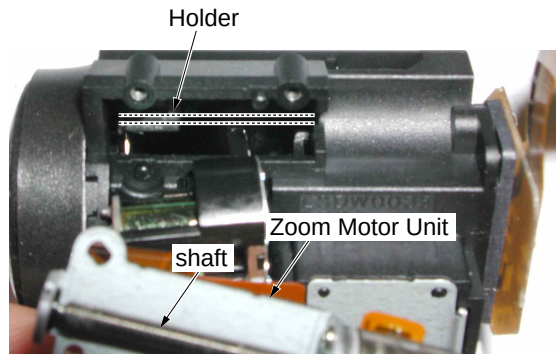


Fig. D8

12. **Installation of EVF Unit**
    1) Secure the 3 Locking Tabs (L-1) on the Top Case Unit.

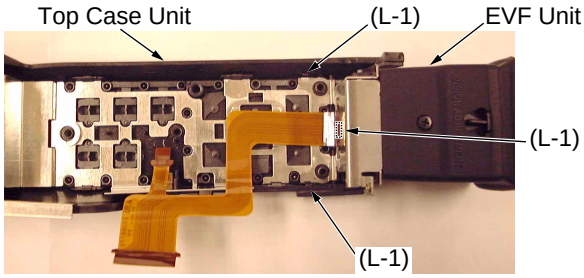


Fig. D9

13. **Removal of EVF Case Ass'y**
    Work carefully so as not to damage the Top F.P.C. in the EVF Case Ass'y.
    1) Remove the Screw (402).
    2) Pull off the EVF Case Ass'y with grasping the Eye Cap carefully.

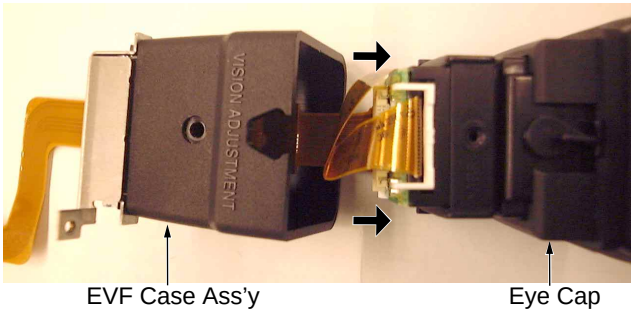


Fig. D10

Installation of EVF Case Ass'y
1) Confirm that the Top F.P.C. is set to ribs in the EVF Case.
2) Connect the Top F.P.C. to the Connector FP951 on the EVF Back Light C.B.A.
3) Install into the EVF Case Ass'y with bending the Top F.P.C. as shown.

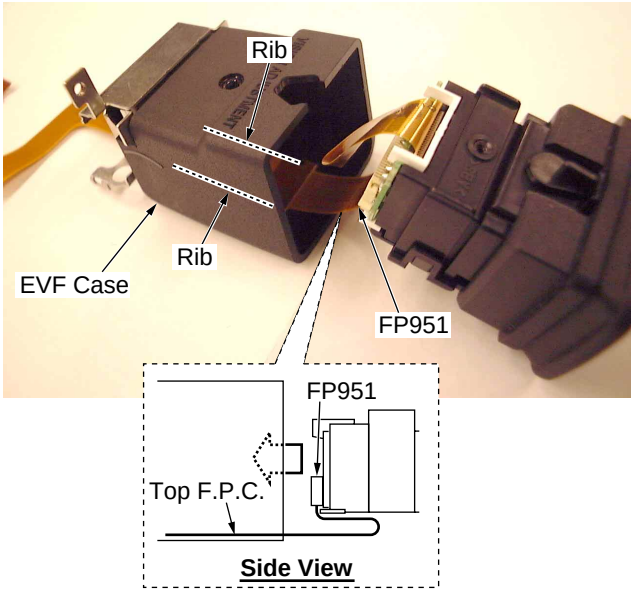


Fig. D11

14. **Installation of Lens Holder, Eye Sight Lever A, Eye Sight Lever B**
    1) Install the Eye Sight Levers A and B into the EVF Protect B taking care that Portion "a" of the Eye Sight Lever A is installed in the correct direction as shown. Then, tighten the Screw (402).
    2) Install the Lens Holder so that the boss of the Lens Holder is set to Portion "a" of the Eye Sight Lever A.

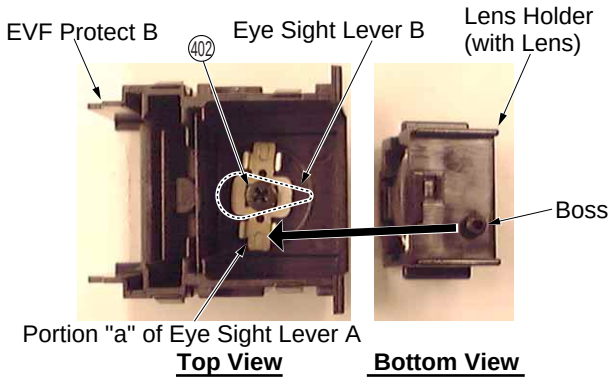


Fig. D12

15. **Installation of LCD Case Ass'y**
    Work carefully so as not to damage the F.P.C.
    1) Put the LCD F.P.C. through the slot of the Side Case R.
    2) To tighten 2 Screws (404, 509), close the LCD Case Ass'y, or turn it to the right or left.
    3) Confirm that the LCD F.P.C. is set with 2 Bosses on the Side Case R as shown.

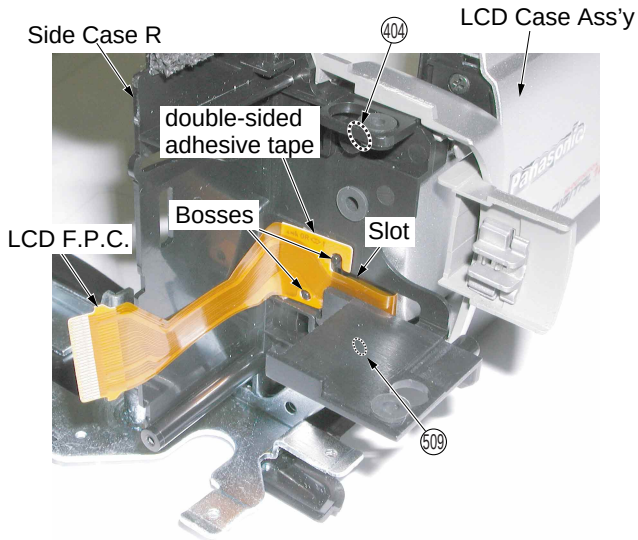
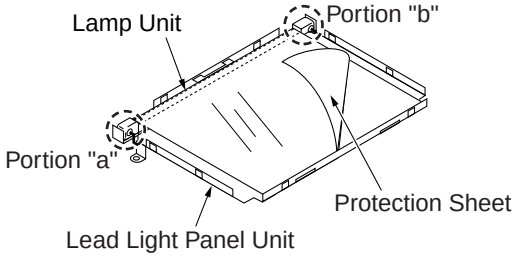


Fig. D13

16. **Removal of LCD Case B**
When removing the LCD Case B, pull the LCD Unit out of the slots while raising the lower portion of the LCD Unit.

17. **Installation of LCD Panel Unit, Lead Light Panel Unit**

a. When replacing the Lead Light Panel Unit, make sure to remove the Protection Sheet as shown below.
b. Use extreme care when handling the Lead Light Panel Unit and the LCD Panel Unit to avoid damage, dust, and spots (especially fingerprints, etc.).
The use of clean cotton gloves is highly recommended.
c. Be careful not to apply any pressure to Portion "a" or "b" of the Lamp Unit as shown below.



d. After replacing the Lead Light Panel Unit, confirm that the Terminal of the Lamp Unit is soldered correctly as shown below.

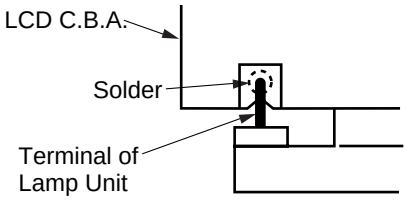
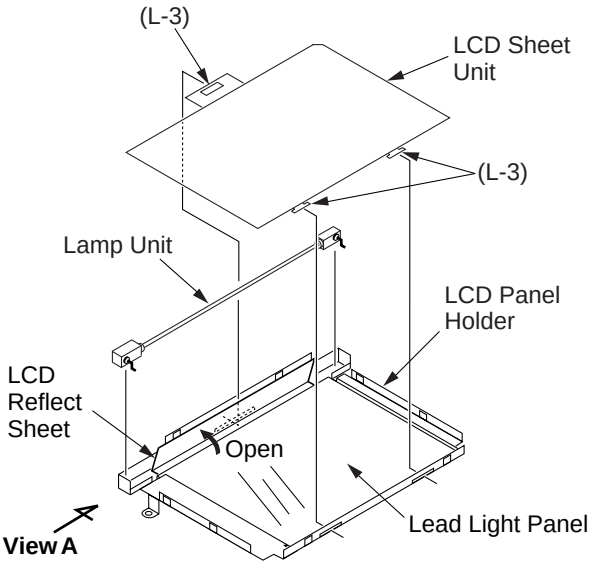


Fig. D14

18. **Installation of Lamp Unit**



a. When installing the Lamp Unit, confirm that the Lamp Unit is positioned as shown below.
b. Use extreme caution when handling the Lead Light Panel and the LCD Sheet Unit to avoid damage, dust, and spots (especially fingerprints, etc.).

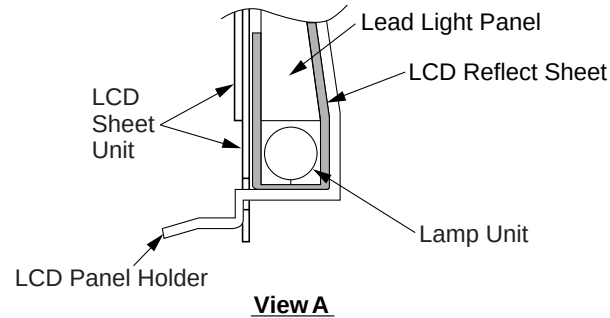


Fig. D15

19. **Installation of Magic VU Knob Holder, Magic VU Knob**
Install them into the Front Cover, verifying that the direction of the Magic VU Knob Holder and the Magic VU Knob are correct.

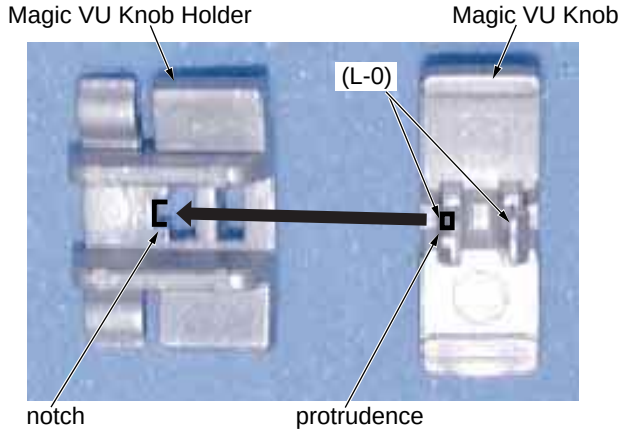
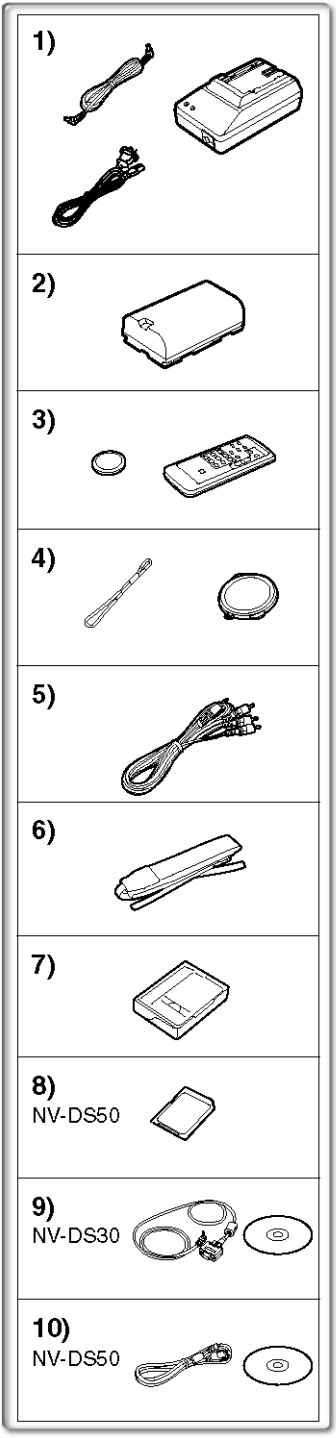


Fig. D16



Standard Accessories

Illustrated on the left are accessories supplied with the Movie Camera.

1) AC Adaptor, DC Input Lead and AC Mains Lead (➜ 10)
2) Battery Pack (➜ 10)
3) Remote Controller and Button-Type Battery (➜ 8, 9)
4) Lens Cap (➜ 11)
5) AV Cable (➜ 35, 36)
6) Shoulder Strap (➜ 12)
7) Digital Video Head Cleaner (➜ 52)
8) SD Memory Card (NV-DS50 only) (➜ 38)
9) Personal Computer Connection Kit (NV-DS30 only) (➜ 37)
10) USB Connection Kit (NV-DS50 only) (➜ 43)

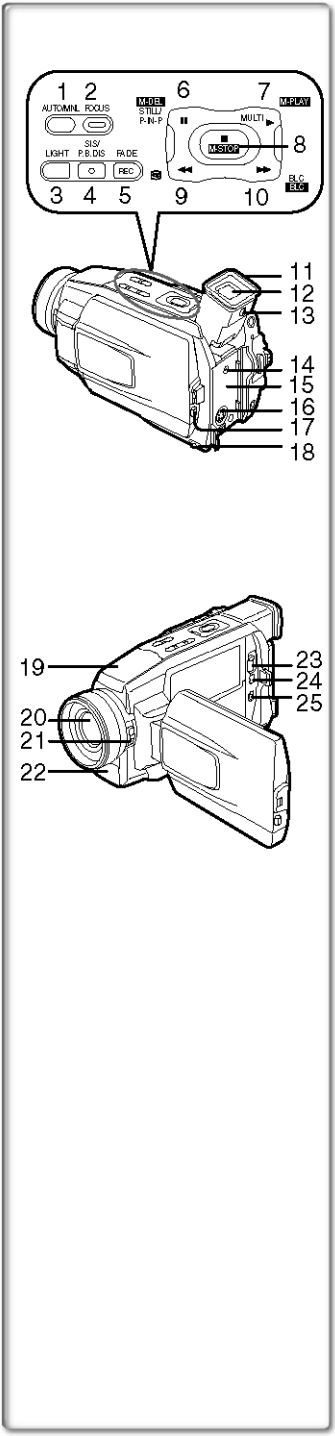
Optional Accessories

1) AC Adaptor (VW-AD9A)
2) Battery Pack (Lithium/CGR-D08S/CGR-D120/800mAh)
3) Battery Pack (Lithium/CGP-D14S/CGP-D210/1400mAh)
4) Battery Pack (Lithium/CGR-D16S/CGR-D220/1600mAh)
5) Battery Pack (Lithium/CGP-D28S/CGP-D320/2800mAh)
6) Battery Pack (Lithium/CGR-D53S/CGR-D815/5300mAh)
7) Battery Pack (Lithium/CGA-D54S/5400mAh)
8) Car Battery Charger (VW-KBD2E)
9) Filter Kit (VW-LF43WE)
10) Wide Conversion Lens (VW-LW4307ME)
11) Tele Conversion Lens (VW-LT4314ME)
12) Stereo Microphone (VW-VMS2E)
13) Shoe Adaptor (VW-SK11E)
14) Tripod (VZ-CT55E)
15) Personal Computer Connection Kit (VW-DTA10A/VW-DTA9E) **(NV-DS30 only)**
16) DV Editing Software with DV Interface Board (VW-DTM21E)
17) DV Editing Software with DV Interface Card (VW-DTM22E)
18) DV Editing Software (VW-DTM20E)
19) DV Cable (VW-CD1E)

The following is for the NV-DS50 model only.

20) MultiMediaCard (VW-MMC8E/VW-MMC16E)
21) SD Memory Card (RP-SD008/RP-SD016/RP-SD032/RP-SD064)
22) PC Card Adaptor for SD Memory Card (BN-SDABPE)
23) USB Reader Writer for SD Memory Card (BN-SDCAPE)

- Some optional accessories may not be available in some countries.



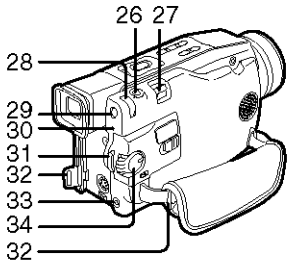
Controls and Components

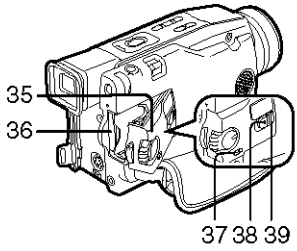
1) Mode Selector Button [AUTO/MNL] (➜ 18, 25, 26, 27)
2) Focus Button [FOCUS] (➜ 27)
3) Video Light Button [LIGHT] (➜ 19)
4) Super Image Stabilizer Button [SIS] (➜ 22)
   Playback Digital Image Stabilizer Button [P.B.DIS] (➜ 30)
5) Fade Button [FADE] (➜ 22)
   Recording Button [REC] (➜ 36, 37)
6) Still Button [STILL] (➜ 20, 29)
   Picture in Picture Button [P-IN-P] (➜ 29)
   Pause Button [❚❚] (➜ 32)
   Memory Card Data Delete Button [M-DEL] (NV-DS50 only) (➜ 42)
7) Play Button [▶] (➜ 30)
   Playback Multi Button [MULTI] (➜ 30)
   Memory Card Play Button [M-PLAY] (NV-DS50 only) (➜ 40)
8) Stop Button [■] (➜ 30)
   Memory Card Stop Button [M-STOP] (NV-DS50 only) (➜ 40)
9) Recording Check Button [⟲] (➜ 18)
   Rewind/Review Button [◀◀] (➜ 30, 31)
10) Backlight Button [BLC] (➜ 23, 39)
    Fast Forward/Cue Button [▶▶] (➜ 31)
11) Eyecup
12) Viewfinder (➜ 13, 53)

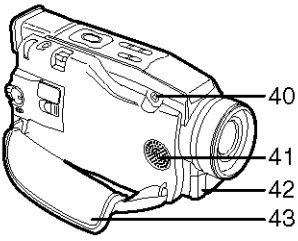
- Due to limitations in LCD production technology, there may be some tiny bright or dark spots on the Viewfinder screen. However, this is not a malfunction and does not affect the recorded picture.

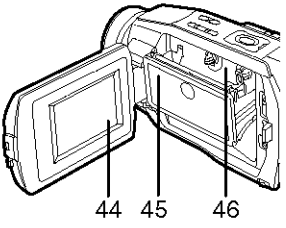
---

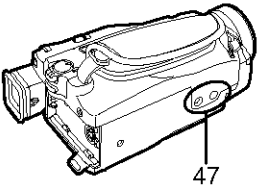
13) Eyepiece Corrector Knob (➜ 13)
14) DC Input Socket [DC IN] (➜ 10)
15) Battery Holder
16) S-Video Input/Output Socket [S-VIDEO] (➜ 35, 36)
17) LCD Monitor Open Button [PUSH OPEN] (➜ 13)
18) Battery Release Lever [BATT RELEASE] (➜ 10)
19) Microphone (built-in, stereo) (➜ 21)
20) Lens
21) 0-Lux Recording Switch [0 LUX ON/OFF] (➜ 23)
22) Built-in Video Light (➜ 19)
23) Cassette Eject Lever [TAPE EJECT] (➜ 12)
24) DV Terminal (➜ 37)
    - Connect this to the digital video equipment.
25) Digital Still Picture Terminal [TO PC] (NV-DS30 only) (➜ 37)
    USB Socket [TO PC] (NV-DS50 only) (➜ 43)











26) Photoshot Button [PHOTOSHOT] (➜ 20, 39)
27) Zoom Lever [W/T] (➜ 21)
Volume Lever [VOLUME] (➜ 30)
28) Multi-Function Dial [PUSH] (➜ 14, 25, 26, 27)
29) Menu Button [MENU] (➜ 14)
30) Power Lamp [POWER] (➜ 18, 30, 39)
31) Recording Start/Stop Button (➜ 18)
32) Shoulder Strap Holders (➜ 12)
33) Audio-Video Input/Output Socket [A/V IN/OUT] (➜ 35, 36)
Headphone Socket [PHONES] (➜ 48)
- Connecting an AV Cable to this socket activates the Movie Camera's built-in speaker, but connecting a headphone, etc. deactivates it.

34) Off/On Mode Selector Switch [VCR/OFF/CAMERA/M-CARD] ([M-CARD] NV-DS50 only) (➜ 12, 18, 30, 39, 50)
35) Card Slot Cover (NV-DS50 only) (➜ 38)
36) Card Slot (NV-DS50 only) (➜ 38)
37) Card Lock Switch [LOCK] (NV-DS50 only) (➜ 39, 40)
- When you want to record in Camera Mode, setting to lock prevents the [VCR/OFF/CAMERA/M-CARD] Switch to be set to [M-CARD] by accident.

38) Card Access Lamp [ACCESS] (NV-DS50 only) (➜ 38)
39) Card Slot Cover Open Lever [OPEN] (NV-DS50 only) (➜ 38)
40) Microphone Socket [EXT MIC]
- Connect with an external microphone or audio equipment. (When this socket is in use, the built-in microphone does not operate.)

41) Speaker (➜ 30)
42) Remote Control Sensor (➜ 9)
Built-in Infra-red Beam Emitters (➜ 23)
43) Grip Belt (➜ 11)
44) LCD Monitor (➜ 13, 53)

- **Due to limitations in LCD production technology, there may be some tiny bright or dark spots on the LCD Monitor screen. However, this is not a malfunction and does not affect the recorded picture.**

45) Cassette Compartment Cover (➜ 12)
46) Cassette Holder (➜ 12)
47) Tripod Receptacle
- Used for mounting the Movie Camera on an optional tripod.

1. **Important safety notice**
   Components identified by the sign ⚠ have special characteristics important for safety. When replacing any of these components. Use only the specified parts.

2. Do not use the part number shown on this drawing for ordering.
   The correct part number and part value is shown in the parts list, and may be slightly different or amended since this drawing was prepared.

3. Use only original replacement parts:
   To maintain original function and reliability of repaired units, use only original replacement parts which are listed with their part numbers in the parts list section of the service manual.

4. Parts different in shape or size may be used.
   However, only interchangeable parts will be supplied as service replacement parts.

5. Test point information
   ○ : Test point with no test pin.

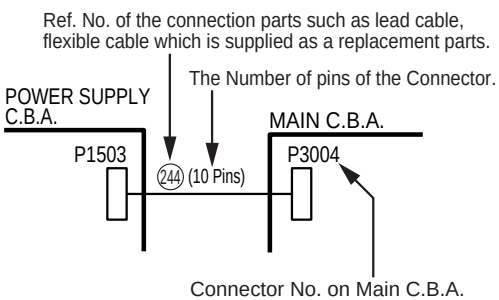
Schematic Diagram Notes

1. Indication for Zener Voltage of Zener Diodes
   The Zener Voltage of Zener Diodes are indicated as such on Schematic Diagrams.

   Example:
   (6.2V).....Zener Voltage

2. How to identify Connectors
   Each connector is labeled with a Connector No. and Pin No. Indicating what it is connected to,
   in other words, its counter part.
   Use the interconnection schematic diagram to find the connection between associated connectors.

   Example:
   The connections between C.B.A.s are shown below.

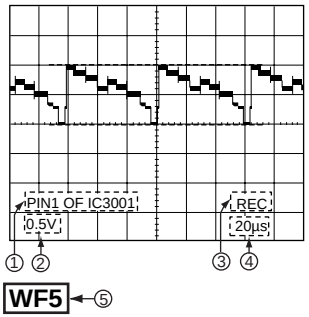

Ref. No. of the connection parts such as lead cable, flexible cable which is supplied as a replacement parts.
The Number of pins of the Connector.
POWER SUPPLY C.B.A.
MAIN C.B.A.
P1503
244 (10 Pins)
P3004
Connector No. on Main C.B.A.

3. Parts marked "PT" are not used in any models included in this service model.

Example:

Signal Waveform Note

How to read Signal Waveform



① Connecting Point
② Volts/Div
③ Operation Mode of VCR
④ Time/Div
⑤ Waveform Point on Schematic

Voltage Chart Note

Voltage Measurement
a. Color bar signal in SP mode.
b. ---:Unmeasurable or not necessary to measure.

Circuit Board Layout Note

Circuit Board Layout shows components installed for various models.
For proper parts content for the model you are servicing, please refer to the schematic diagram and parts list.

NOTE:
Circuit Board Layout includes components which are not used.

Model No. Identification Mark

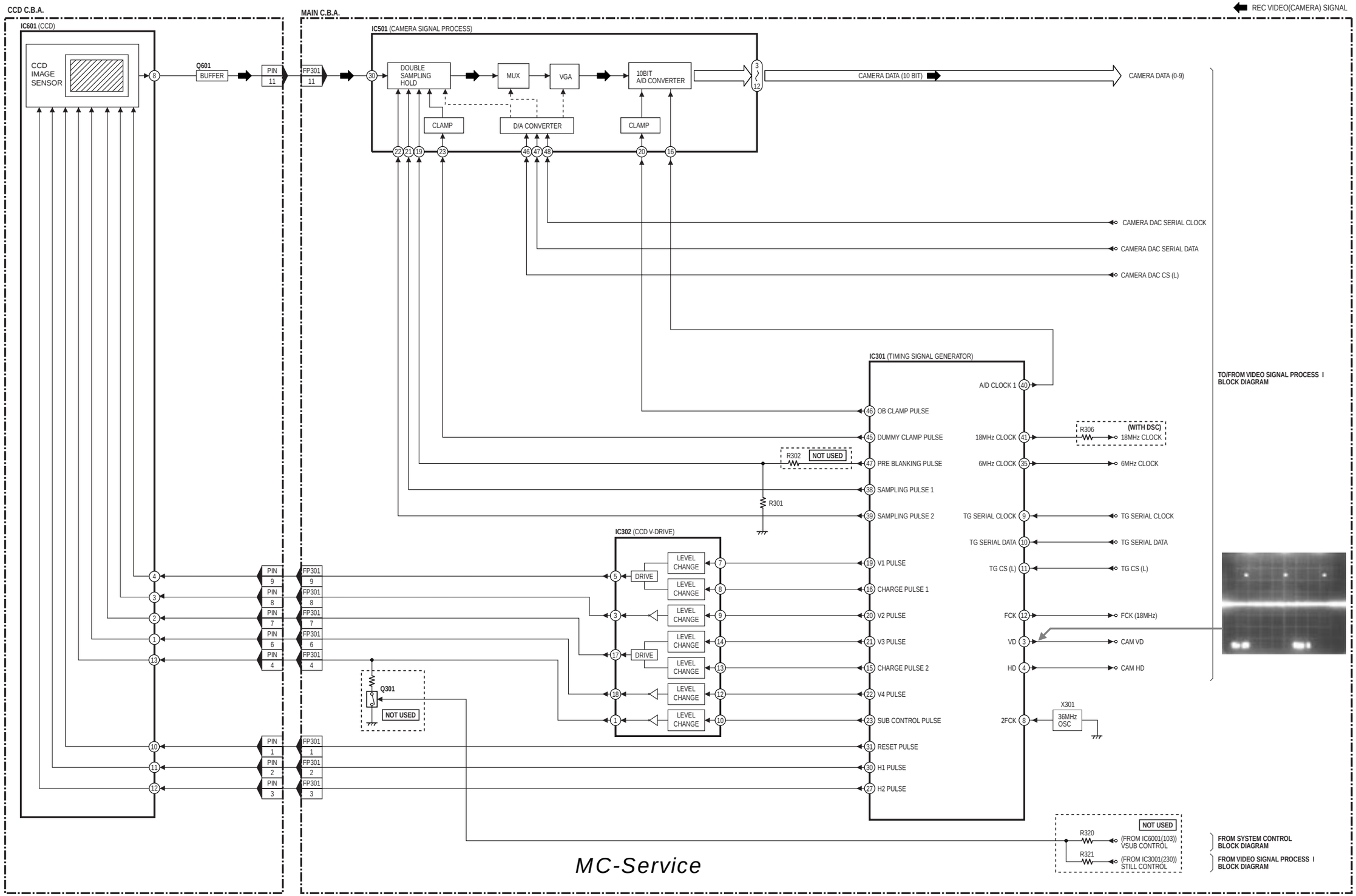
COMPARISON CHART OF MODELS & MARKS

MODEL	MARK	MODEL	MARK
NV-DS29EG	A	NV-DS30EN	I
NV-DS20EGM	B	NV-DS30ENT	J
NV-DS29B	C	NV-DS30ENC	K
NV-DS29EGE	D	NV-DS30A	L
NV-DS30EG	E	NV-DS50EN	M
NV-DS30EGM	F	NV-DS50ENT	N
NV-DS30B	G	NV-DS50A	O
NV-DS30EGE	H	Not Used	PT

Note : Refer to item 3 of Schematic Diagram Notes for mark "PT".

MC-Service

CCD DRIVE BLOCK DIAGRAM



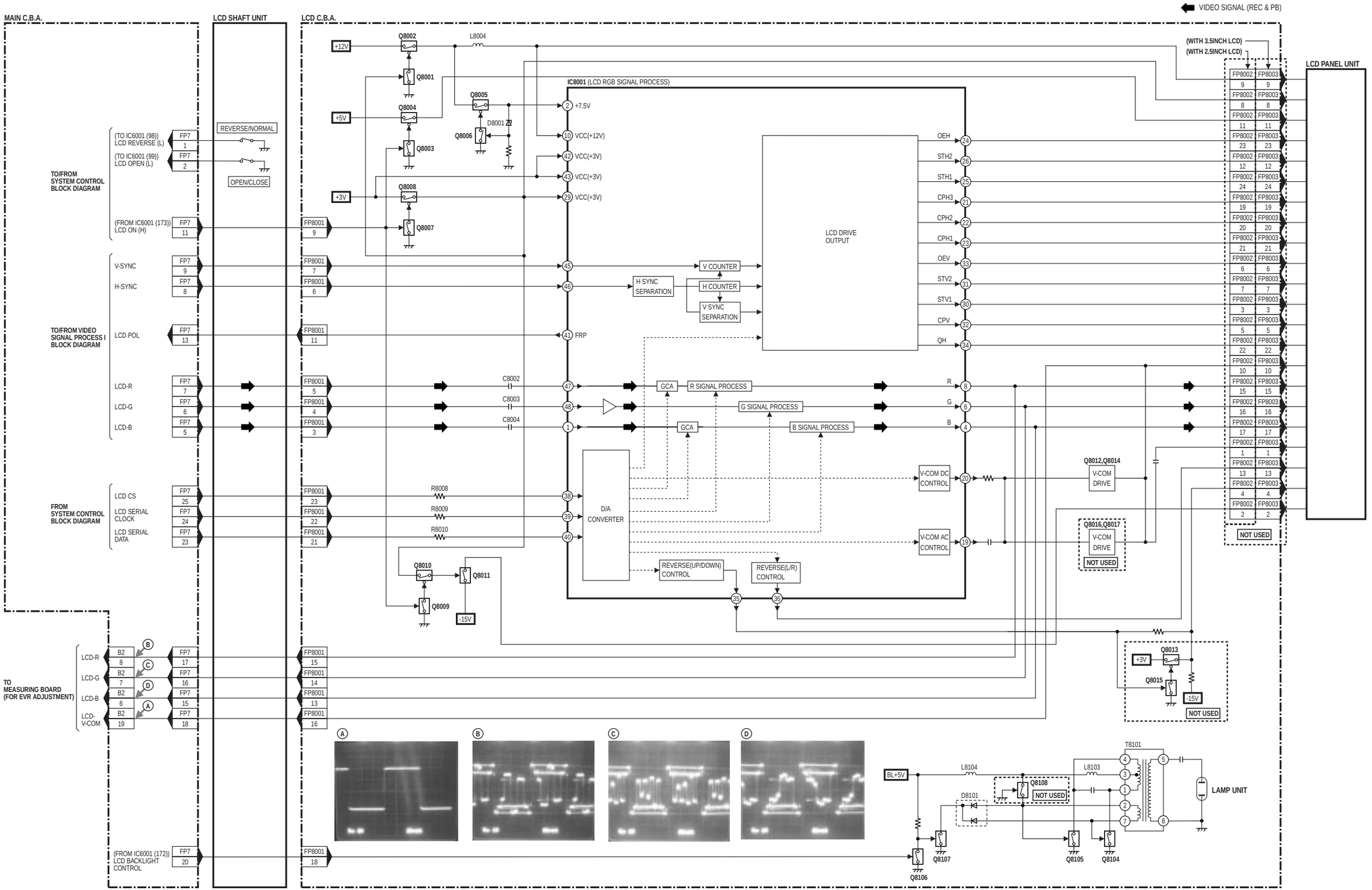
MC-Service

CCD DRIVE BLOCK DIAGRAM

NV-DS29EG/NV-DS29EGM/NV-DS29B/NV-DS29EGE/NV-DS30EG/NV-DS30EGM/NV-DS30B/NV-DS30EGE/NV-DS30EN/NV-DS30ENT/NV-DS30ENC/NV-DS30A/NV-DS50EN/NV-DS50ENT/NV-DS50A

LCD BLOCK DIAGRAM

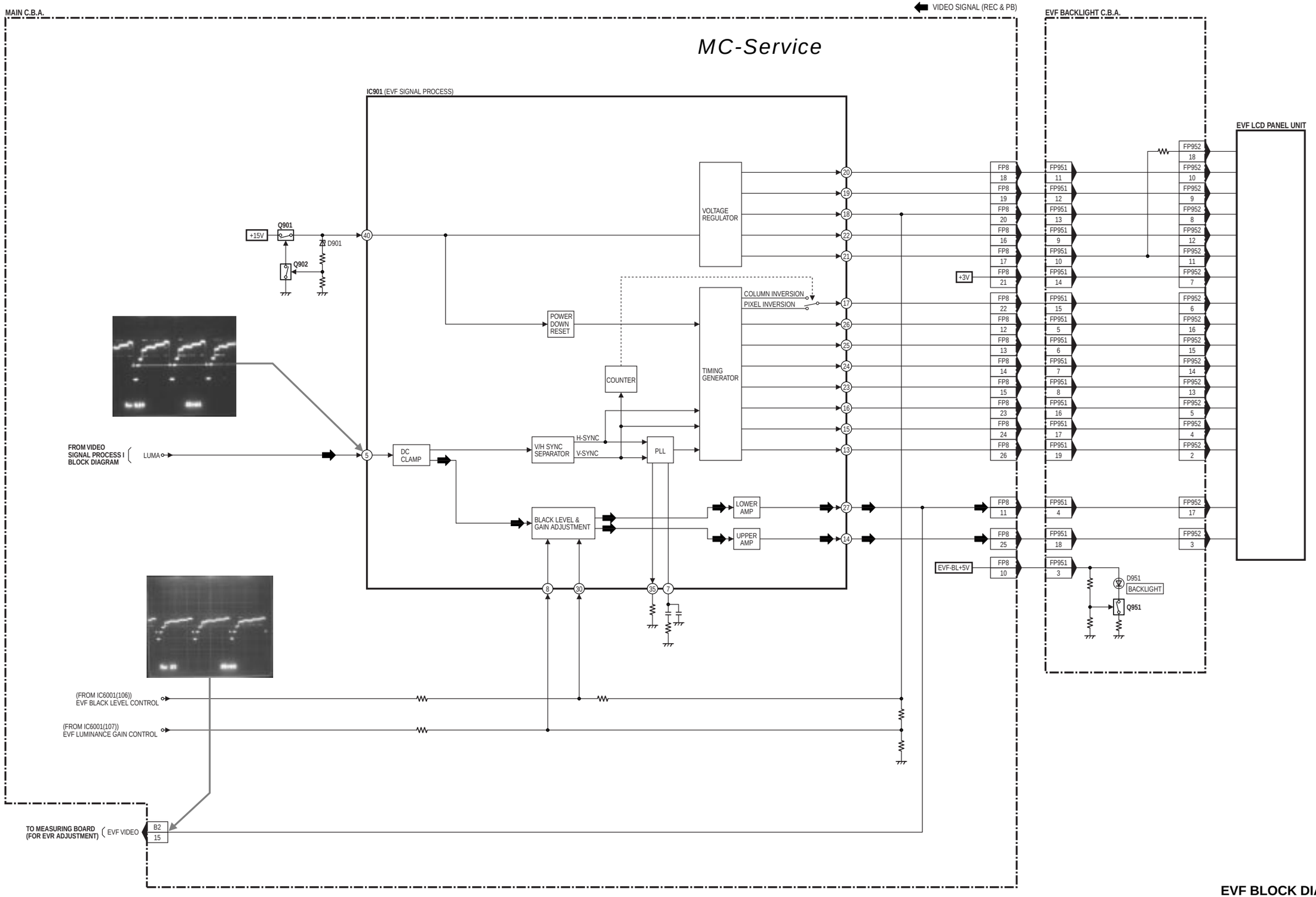
MC-Service



LCD BLOCK DIAGRAM

NV-DS29EG/NV-DS29EGM/NV-DS29B/NV-DS29EGE/NV-DS30EG/NV-DS30EGM/NV-DS30B/NV-DS30EGE/NV-DS30EN/NV-DS30ENT/NV-DS30ENC/NV-DS30A/NV-DS50EN/NV-DS50ENT/NV-DS50A

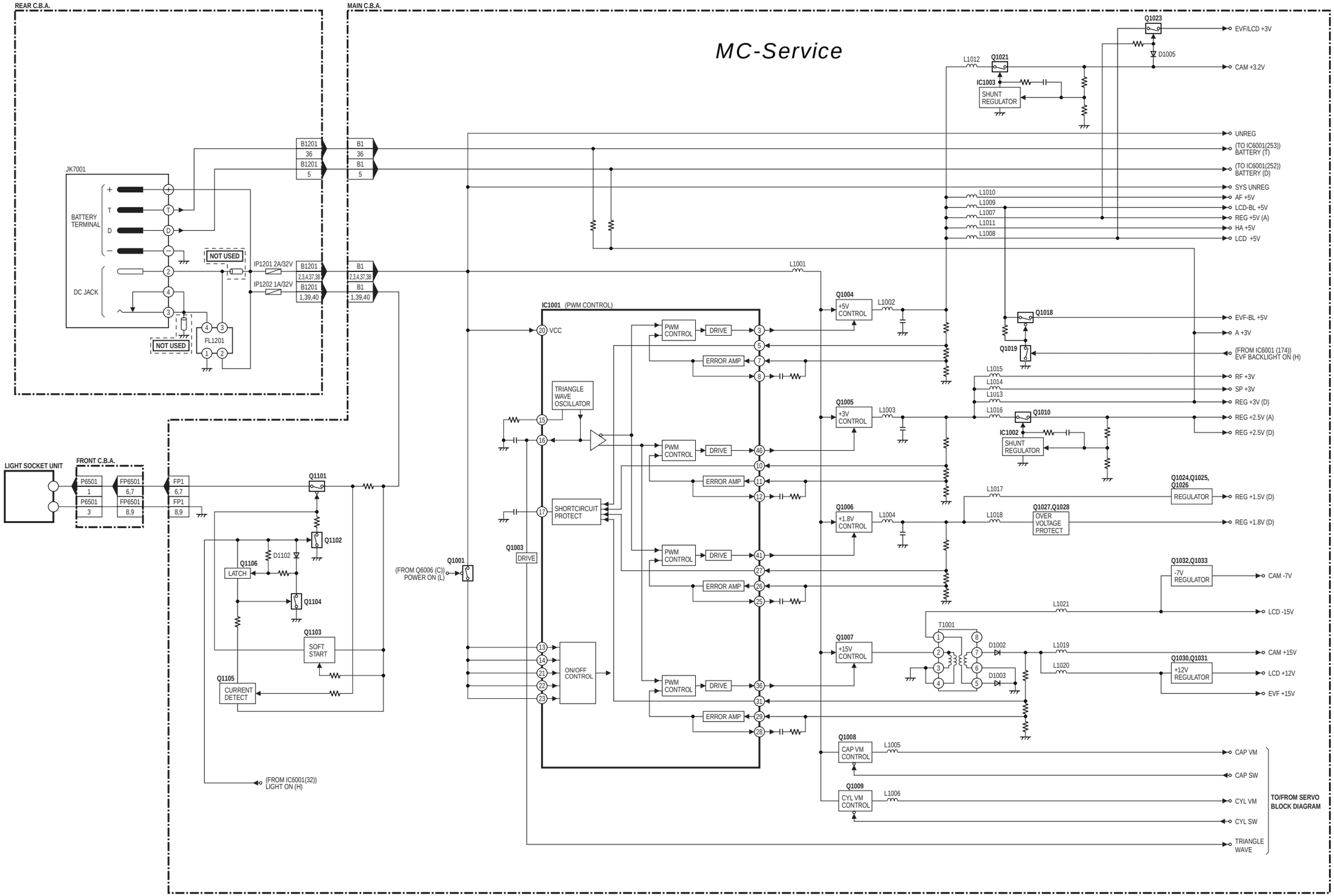
EVF BLOCK DIAGRAM



EVF BLOCK DIAGRAM

NV-DS29EG/NV-DS29EGM/NV-DS29B/NV-DS29EGE/NV-DS30EG/NV-DS30EGM/NV-DS30B/NV-DS30EGE/NV-DS30EN/NV-DS30ENT/NV-DS30ENC/NV-DS30A/NV-DS50EN/NV-DS50ENT/NV-DS50A

POWER SUPPLY BLOCK DIAGRAM



POWER SUPPLY BLOCK DIAGRAM

NV-DS29EG/NV-DS29EGM/NV-DS29B/NV-DS29EGE/NV-DS30EG/NV-DS30EGM/NV-DS30B/NV-DS30EGE/NV-DS30EN/NV-DS30ENT/NV-DS30ENC/NV-DS30A/NV-DS50EN/NV-DS50ENT/NV-DS50A

REAR C.B.A. LSEP8183P1 (A,B,C,D,E,F,G,H,I,J,K,L) / LSEP8183Q1 (M,N,O)

NOTE:
CIRCUIT BOARD LAYOUT SHOWS COMPONENTS INSTALLED FOR VARIOUS MODELS.
FOR PROPER PARTS CONTENT FOR THE MODEL YOU ARE SERVICING,
PLEASE REFER TO THE SCHEMATIC DIAGRAM AND PARTS LIST.

NOTE:
CIRCUIT BOARD LAYOUT INCLUDES COMPONENTS WHICH ARE NOT USED.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

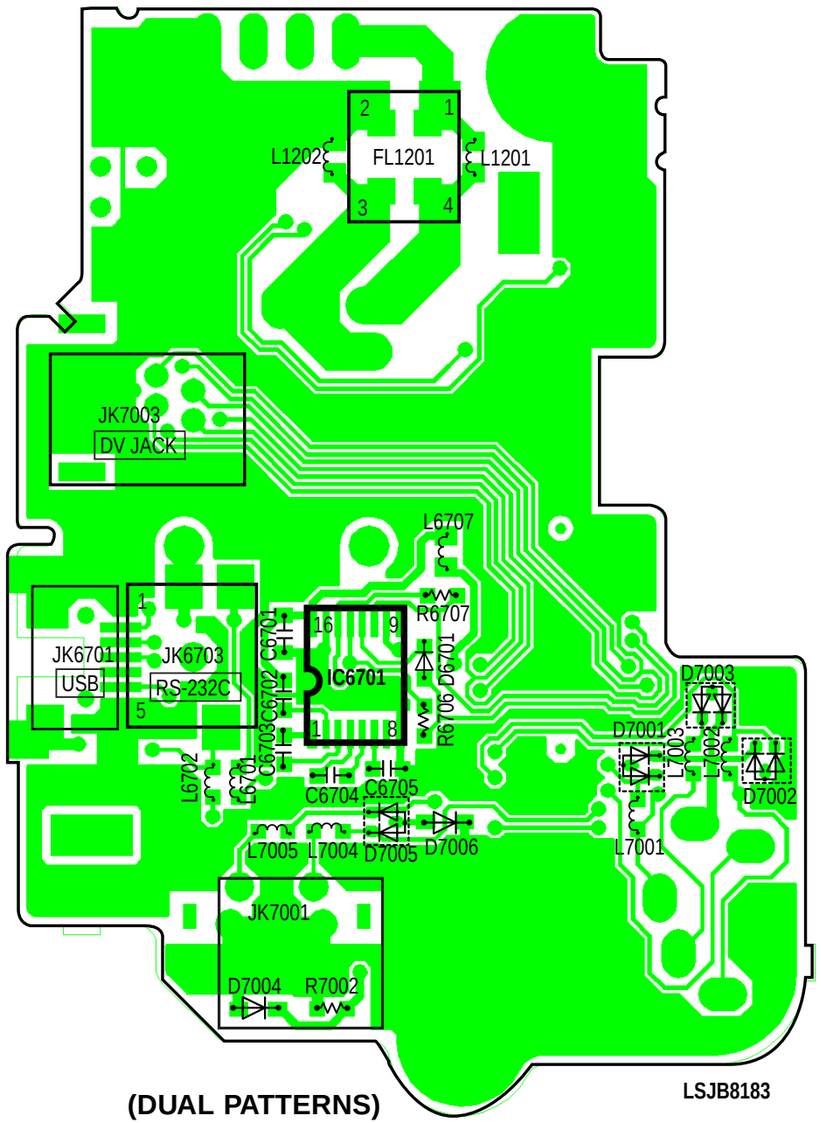
IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE
SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS,
USE ONLY THE SPECIFIED PARTS.

COMPARISON CHART
OF MODELS & MARKS

MODEL	MARK
NV-DS29EG	A
NV-DS20EGM	B
NV-DS29B	C
NV-DS29EGE	D
NV-DS30EG	E
NV-DS30EGM	F
NV-DS30B	G
NV-DS30EGE	H
NV-DS30EN	I
NV-DS30ENT	J
NV-DS30ENC	K
NV-DS30A	L
NV-DS50EN	M
NV-DS50ENT	N
NV-DS50A	O

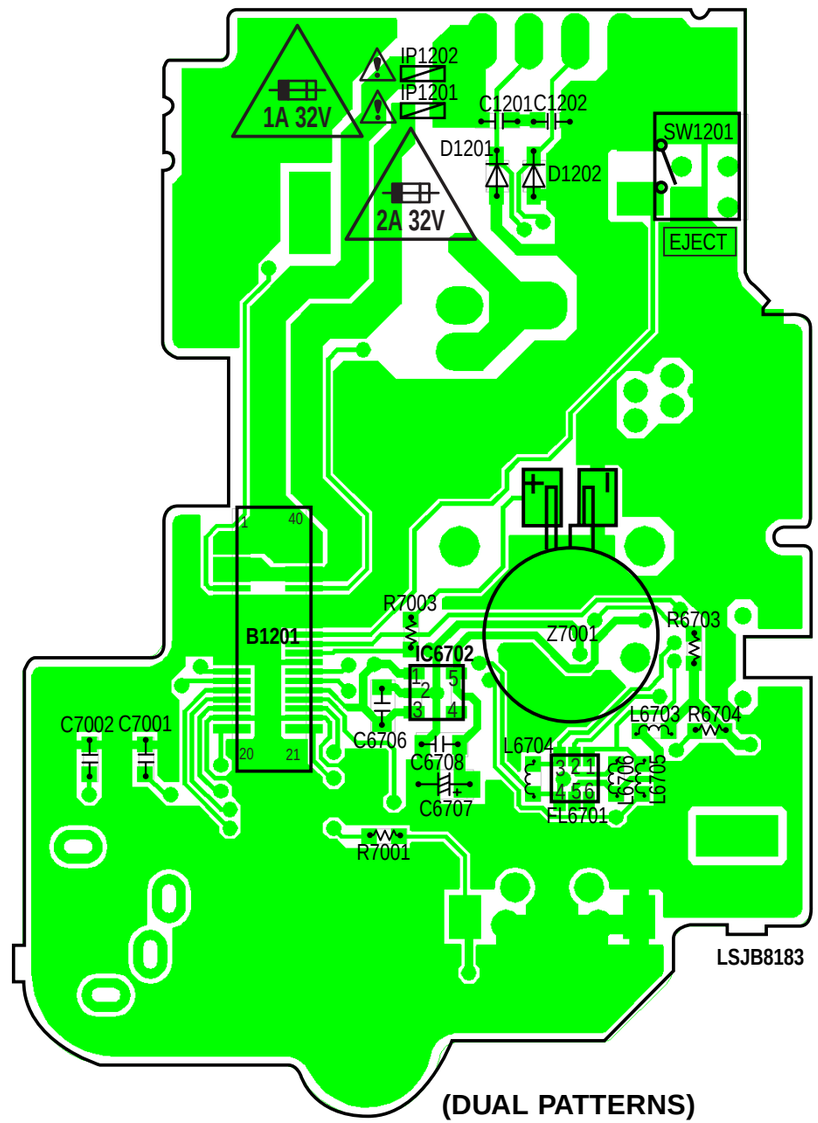
MC-Service

(COMPONENT SIDE)



(DUAL PATTERNS)

(FOIL SIDE)



(DUAL PATTERNS)

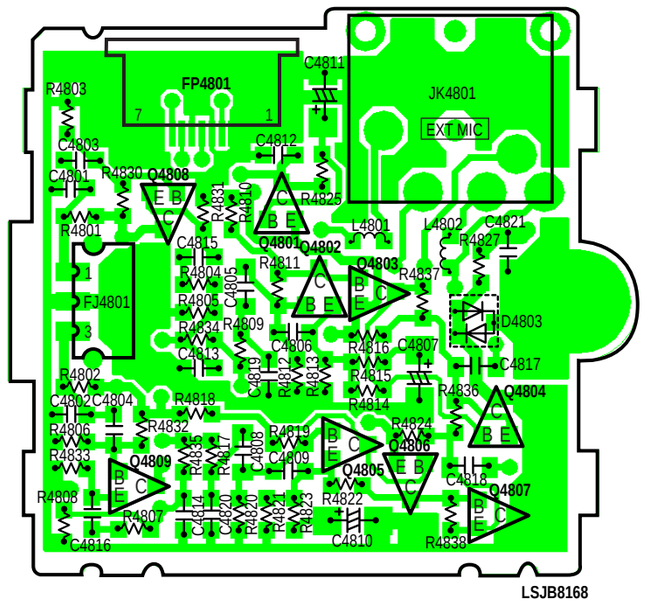
REAR C.B.A. LSEP8183P1/LSEP8183Q1
NV-DS29EG/NV-DS29EGM/NV-DS29B/NV-DS29EGE/NV-DS30EG/NV-DS30EGM/NV-DS30B/NV-DS30EGE/
NV-DS30EN/NV-DS30ENT/NV-DS30ENC/NV-DS30A/NV-DS50EN/NV-DS50ENT/NV-DS50A

MICROPHONE C.B.A. LSXM0024

“FOR REFERENCE ONLY”

NOTE:
MICROPHONE C.B.A. IS NOT SERVICEABLE AND IS SUPPLIED AS A UNIT ONLY FOR REPLACEMENT.

(FOIL SIDE)



(DUAL PATTERNS)

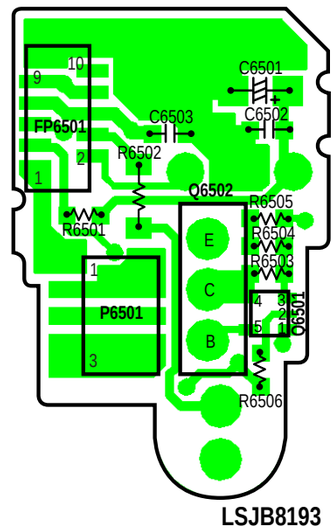
MC-Service

FRONT C.B.A. LSEP8193A1

“FOR REFERENCE ONLY”

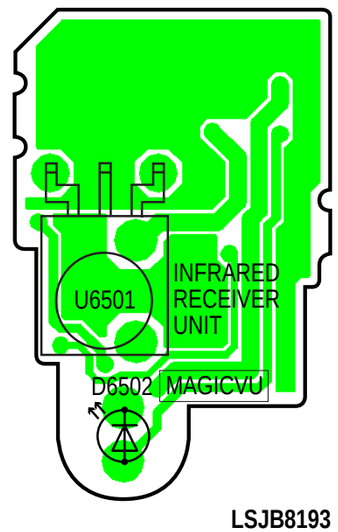
NOTE:
FRONT C.B.A. IS NOT SERVICEABLE AND IS SUPPLIED AS A UNIT ONLY FOR REPLACEMENT.

(COMPONENT SIDE)



(DUAL PATTERNS)

(FOIL SIDE)



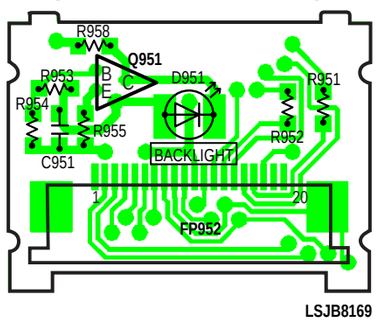
(DUAL PATTERNS)

EVF BACK LIGHT C.B.A. LSEP8169B1

“FOR REFERENCE ONLY”

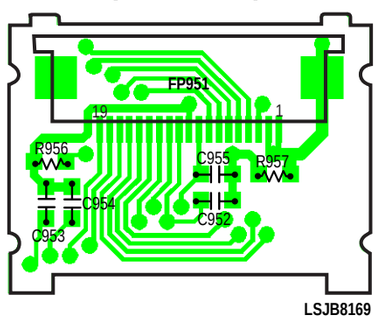
NOTE:
EVF BACK LIGHT C.B.A. IS NOT SERVICEABLE AND IS SUPPLIED AS A UNIT ONLY FOR REPLACEMENT.

(COMPONENT SIDE)



(DUAL PATTERNS)

(FOIL SIDE)



(DUAL PATTERNS)

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

NOTE:
CIRCUIT BOARD LAYOUT SHOWS COMPONENTS INSTALLED FOR VARIOUS MODELS. FOR PROPER PARTS CONTENT FOR THE MODEL YOU ARE SERVICING, PLEASE REFER TO THE SCHEMATIC DIAGRAM AND PARTS LIST.

NOTE:
CIRCUIT BOARD LAYOUT INCLUDES COMPONENTS WHICH ARE NOT USED.

MICROPHONE C.B.A. LSXM0024
FRONT C.B.A. LSEP8193A1
EVF BACK LIGHT C.B.A. LSEP8169B1

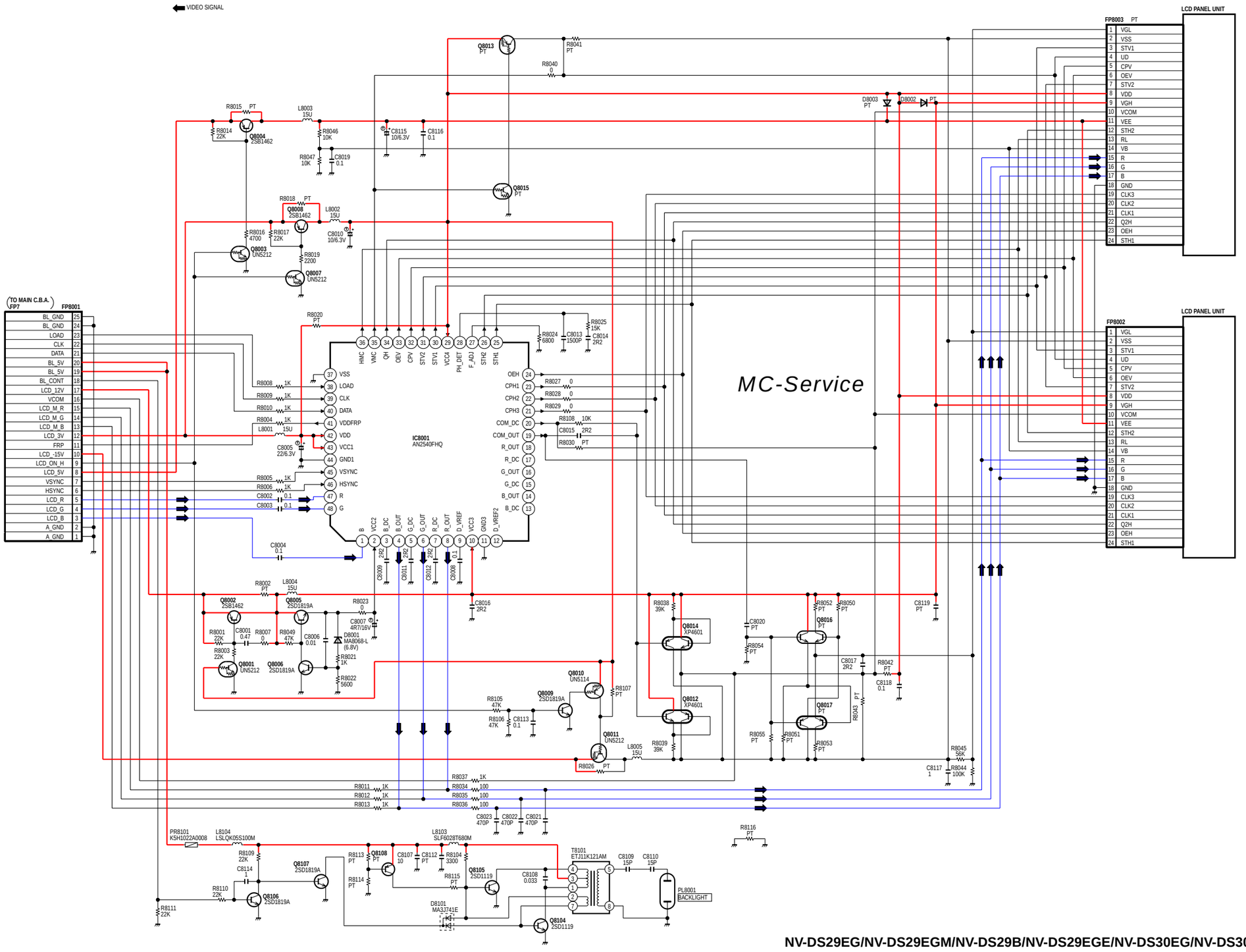
NV-DS29EG/NV-DS29EGM/NV-DS29B/NV-DS29EGE/NV-DS30EG/NV-DS30EGM/NV-DS30B/NV-DS30EGE/ NV-DS30EN/NV-DS30ENT/NV-DS30ENC/NV-DS30A/NV-DS50EN/NV-DS50ENT/NV-DS50A

LCD SCHEMATIC DIAGRAM

NOTE: For placing a purchase order of the parts, be sure to use the part number listed in the parts list. Do not use the part number on this diagram.

NOTE: PARTS ENCLOSED IN DASHED LINES MARKED "PT" ARE NOT USED.

NOTE: FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.



LINK TO VOLTAGE CHART

LSJB8188

LCD SCHEMATIC DIAGRAM

NV-DS29EG/NV-DS29EGM/NV-DS29B/NV-DS29EGE/NV-DS30EG/NV-DS30EGM/NV-DS30B/NV-DS30EGE/ NV-DS30EN/NV-DS30ENT/NV-DS30ENC/NV-DS30A/NV-DS50EN/NV-DS50ENT/NV-DS50A

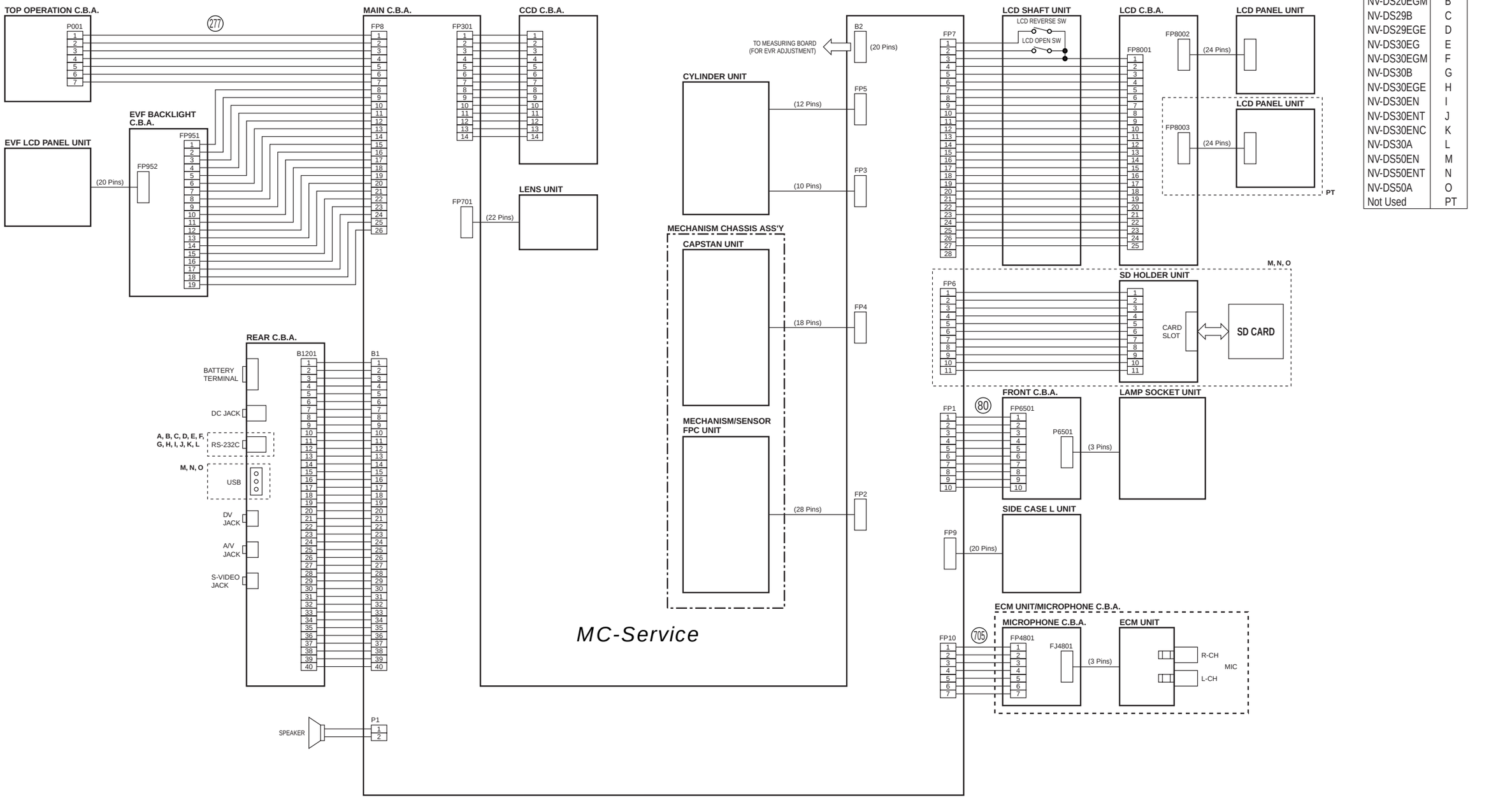
INTERCONNECTION SCHEMATIC DIAGRAM

NOTE:
PARTS ENCLOSED IN DASHED LINES MARKED "PT" ARE NOT USED.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

COMPARISON CHART OF MODELS & MARKS

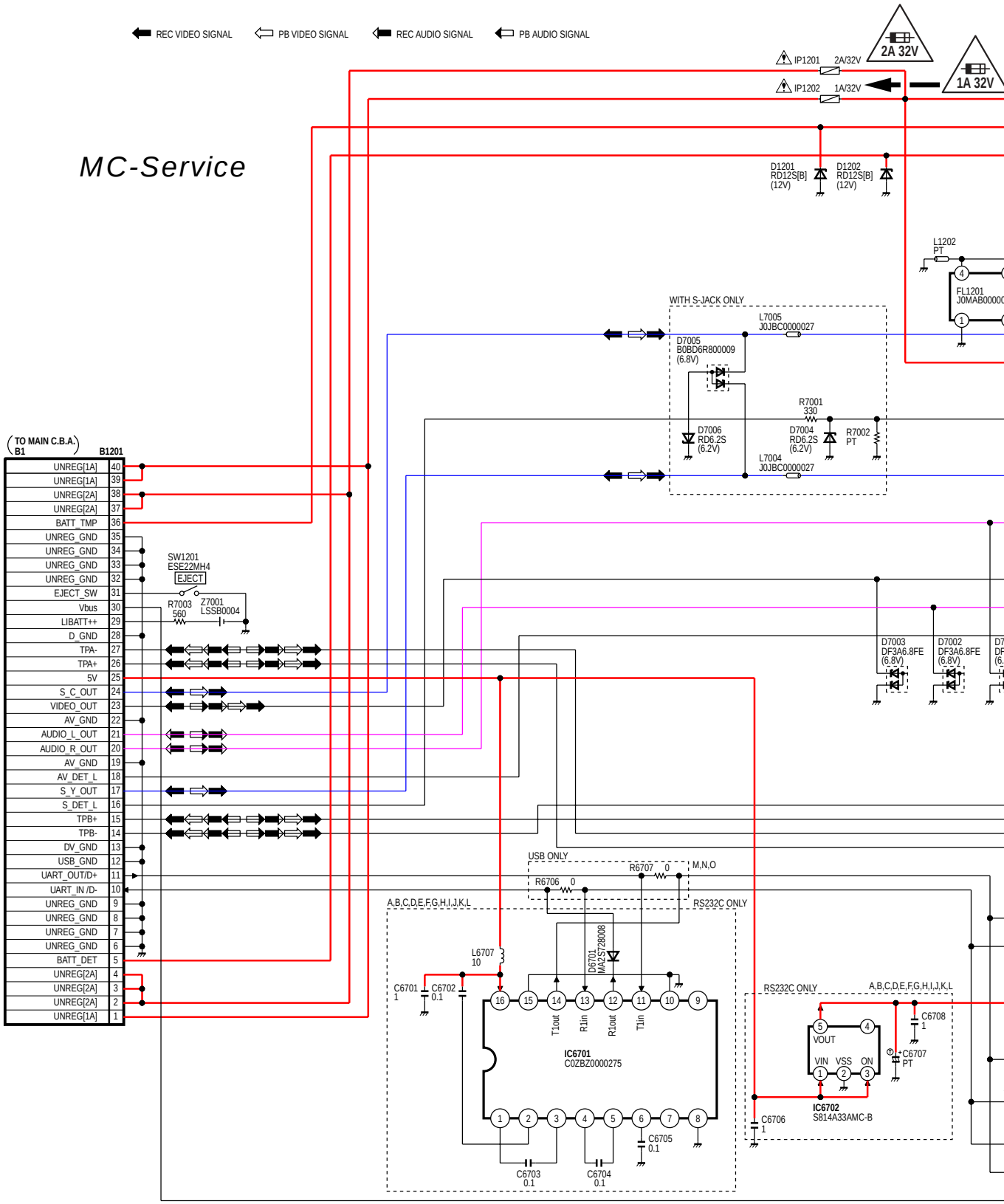
MODEL	MARK
NV-DS29EG	A
NV-DS20EGM	B
NV-DS29B	C
NV-DS29EGE	D
NV-DS30EG	E
NV-DS30EGM	F
NV-DS30B	G
NV-DS30EGE	H
NV-DS30EN	I
NV-DS30ENT	J
NV-DS30ENC	K
NV-DS30A	L
NV-DS50EN	M
NV-DS50ENT	N
NV-DS50A	O
Not Used	PT



INTERCONNECTION SCHEMATIC DIAGRAM
NV-DS29EG/NV-DS29EGM/NV-DS29B/NV-DS29EGE/NV-DS30EG/NV-DS30EGM/NV-DS30B/NV-DS30EGE/
NV-DS30EN/NV-DS30ENT/NV-DS30ENC/NV-DS30A/NV-DS50EN/NV-DS50ENT/NV-DS50A

REAR SCHEMATIC DIAGRAM

NOTE: For placing a purchase order of the parts,
be sure to use the part number listed in the parts
Do not use the part number on this diagram.



rchase order of the parts,
e part number listed in the parts list.
art number on this diagram.

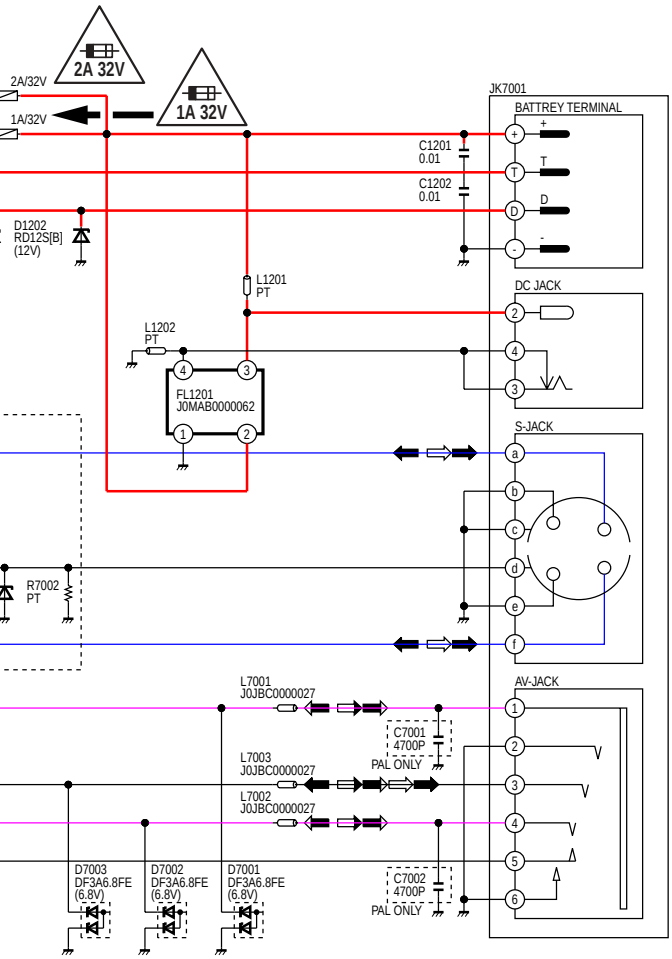
NOTE:
PARTS ENCLOSED IN DASHED LINES MARKED "PT" ARE NOT USED.

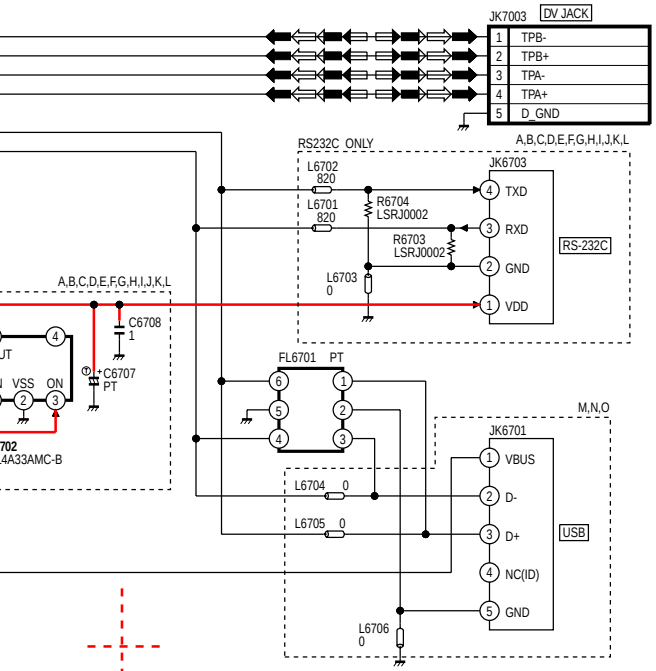
NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.

COMPARISON CHART OF MODELS & MARKS

MODEL	MARK
NV-DS29EG	A
NV-DS20EGM	B
NV-DS29B	C
NV-DS29EGE	D
NV-DS30EG	E
NV-DS30EGM	F
NV-DS30B	G
NV-DS30EGE	H
NV-DS30EN	I
NV-DS30ENT	J
NV-DS30ENC	K
NV-DS30A	L
NV-DS50EN	M
NV-DS50ENT	N
NV-DS50A	O
Not Used	PT





LSJB8183
REAR SCHEMATIC DIAGRAM
NV-DS29EG/NV-DS29EGM/NV-DS29B/NV-DS29EGE/NV-DS30EG/ NV-DS30EGM/NV-DS30B/NV-DS30EGE/NV-DS30EN/NV-DS30ENT/ NV-DS30ENC/NV-DS30A/NV-DS50EN/NV-DS50ENT/NV-DS50A

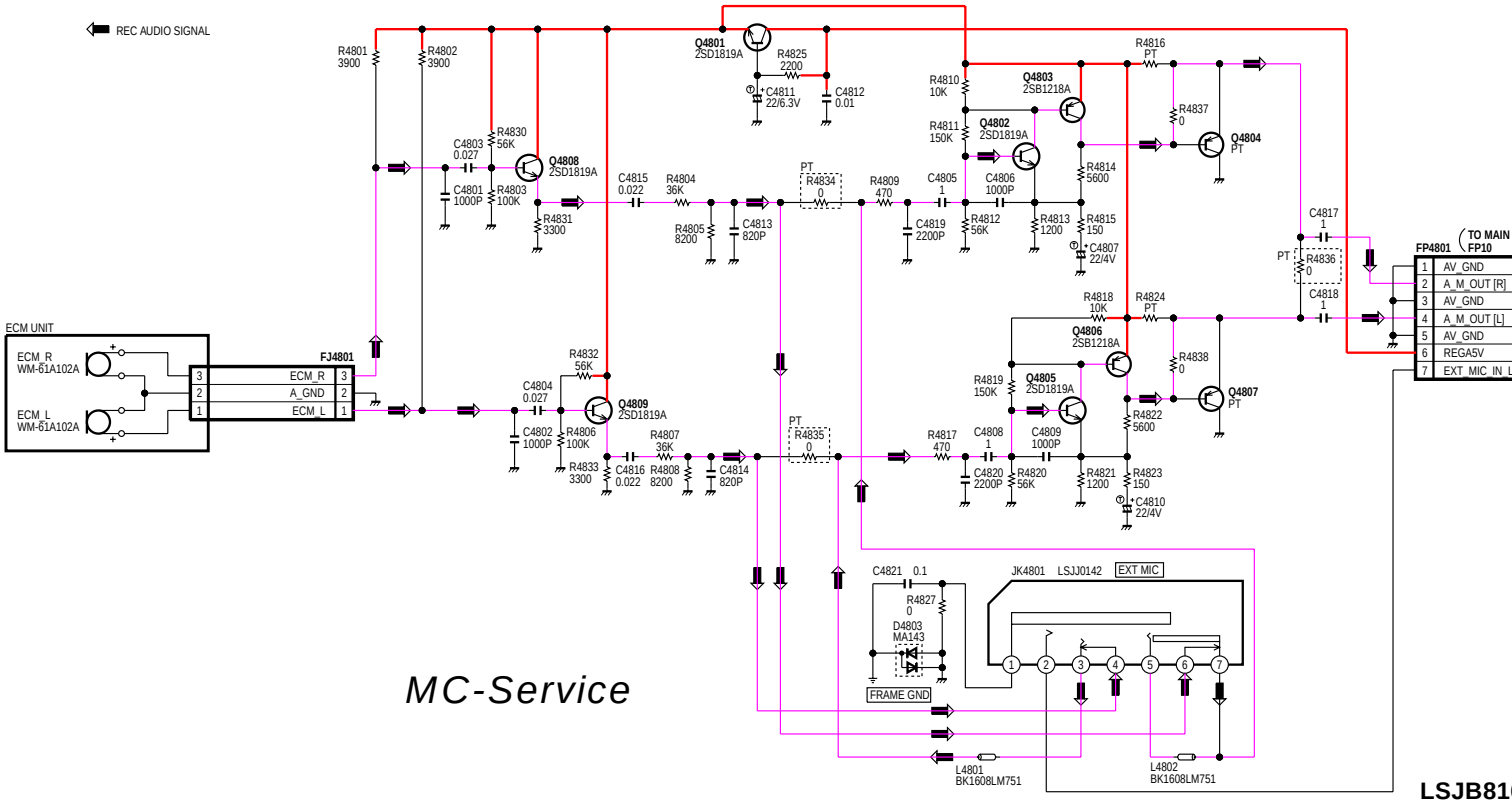
8.4. MICROPHONE/FRONT/EVF BACKLIGHT SCHEMATIC DIAGRAMS

NOTE: For placing a purchase order of the parts,
be sure to use the part number listed in the parts
Do not use the part number on this diagram.

MICROPHONE SCHEMATIC DIAGRAM

"FOR REFERENCE ONLY"

NOTE:
MICROPHONE C.B.A. IS NOT SERVICEABLE AND IS
SUPPLIED AS A UNIT ONLY FOR REPLACEMENT.



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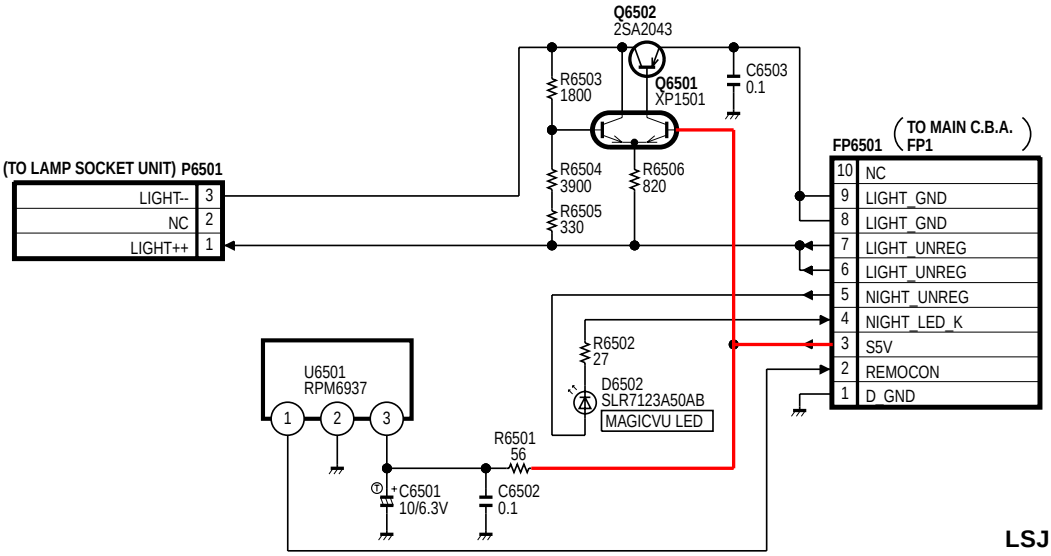
LSJB81

FRONT SCHEMATIC DIAGRAM

"FOR REFERENCE ONLY"

NOTE:
FRONT C.B.A. IS NOT SERVICEABLE AND IS
SUPPLIED AS A UNIT ONLY FOR REPLACEMENT.



LSJB8193

S

rchase order of the parts,
e part number listed in the parts list.
art number on this diagram.

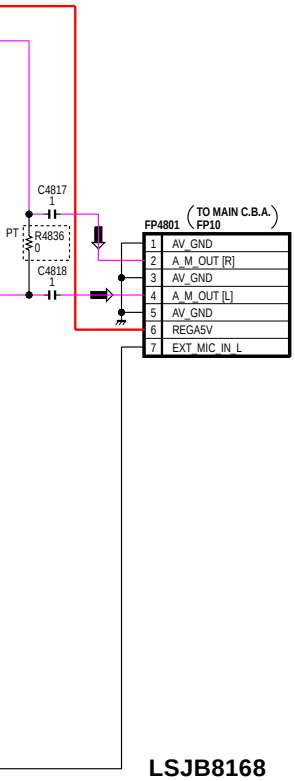
NOTE:
PARTS ENCLOSED IN DASHED LINES MARKED "PT" ARE NOT USED.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

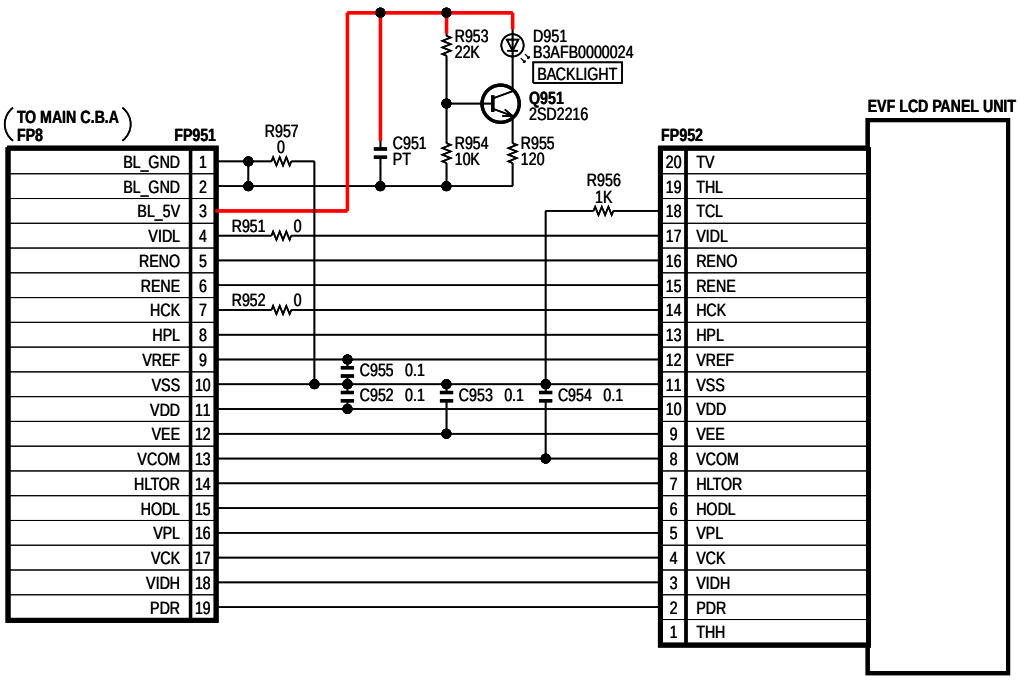
EVF BACKLIGHT SCHEMATIC DIAGRAM

"FOR REFERENCE ONLY"

NOTE:
EVF BACK LIGHT C.B.A. IS NOT SERVICEABLE AND IS SUPPLIED AS A UNIT ONLY FOR REPLACEMENT.



LSJB8168



MC-Service

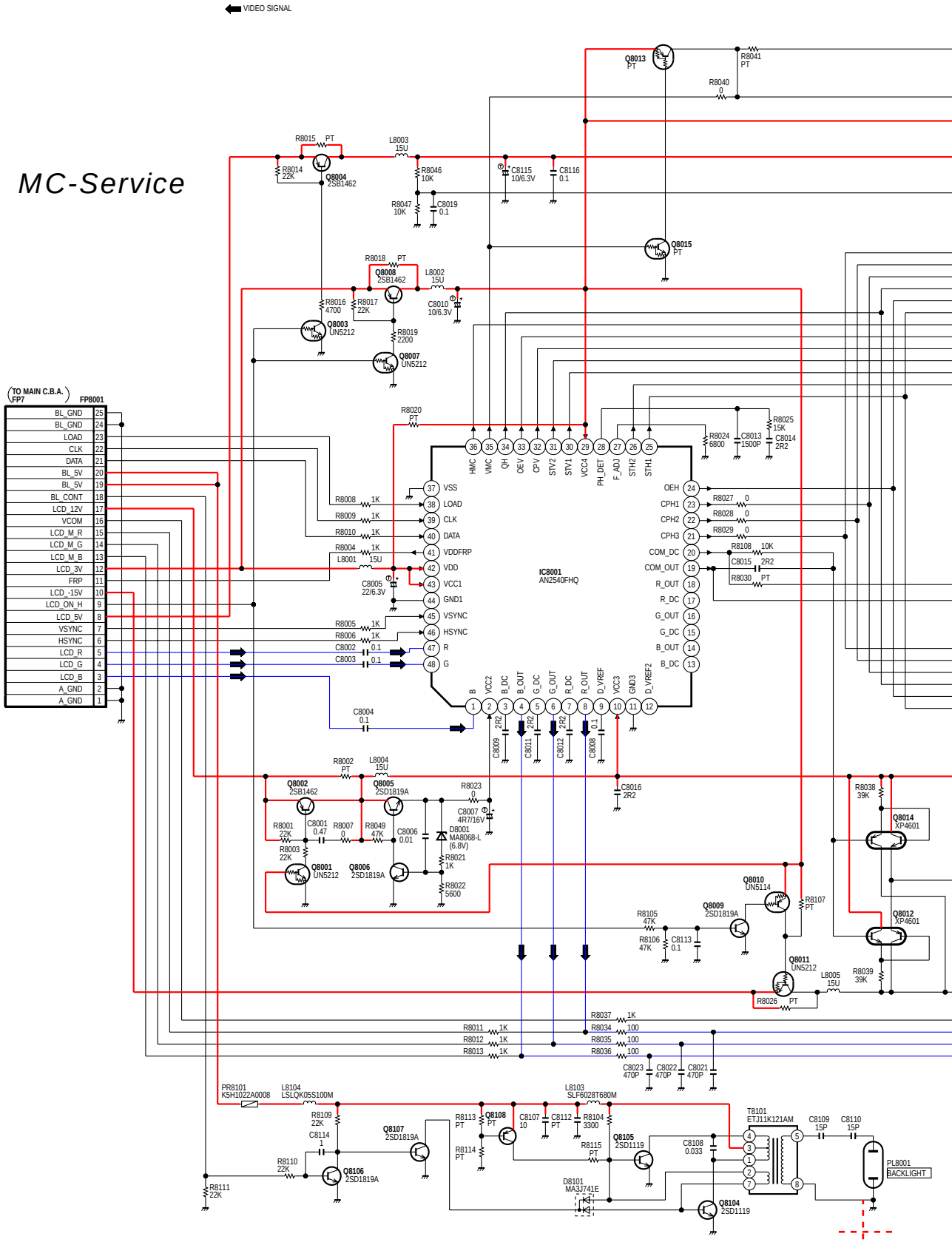
LSJB8169

8.5. LCD SCHEMATIC DIAGRAM

LCD SCHEMATIC DIAGRAM

NOTE: For placing a purchase order of the parts,
be sure to use the part number listed in the parts
Do not use the part number on this diagram.

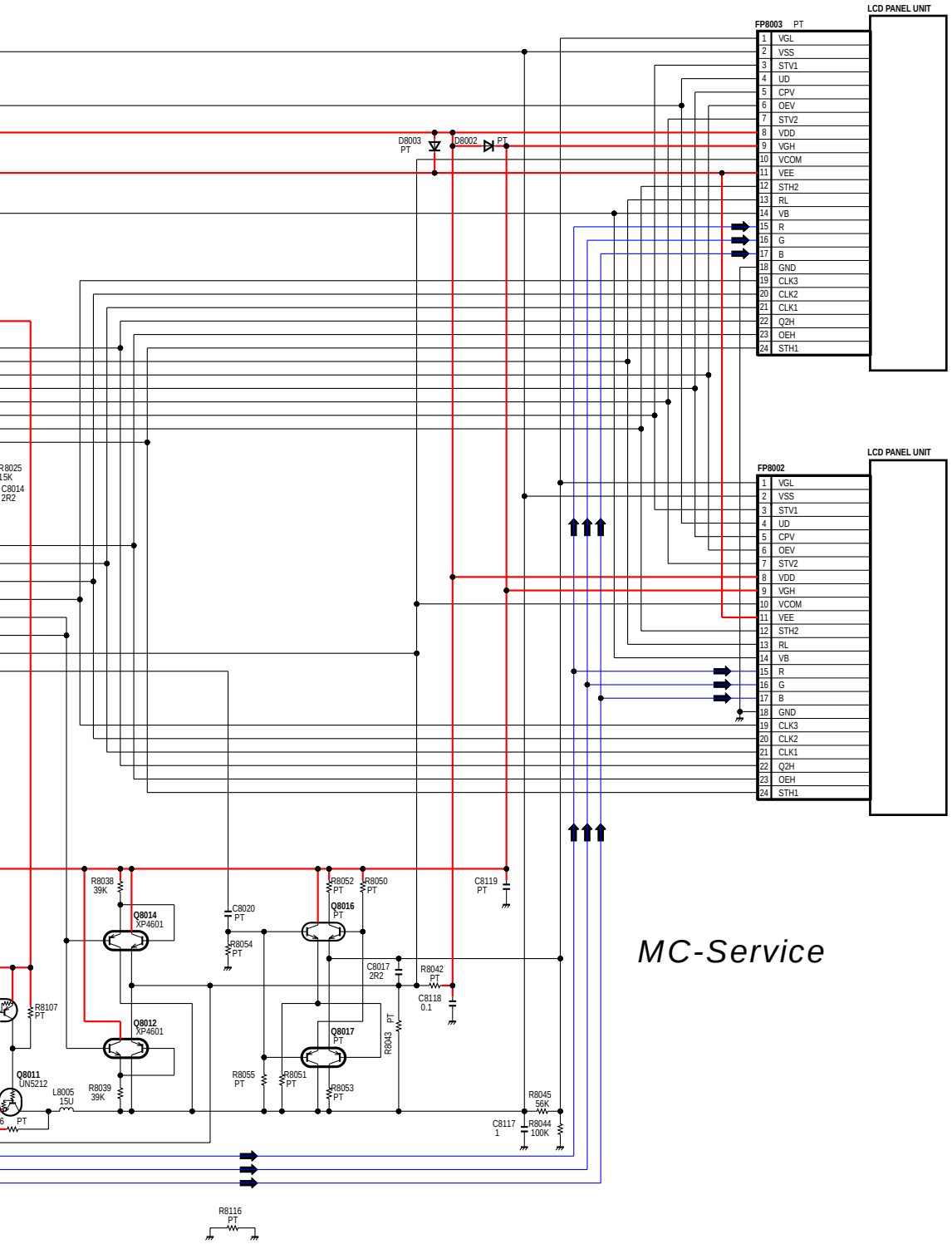
MC-Service



rchase order of the parts,
e part number listed in the parts list.
art number on this diagram.

NOTE:
PARTS ENCLOSED IN DASHED LINES MARKED "PT" ARE NOT USED.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.



MC-Service

LINK TO VOLTAGE CHART

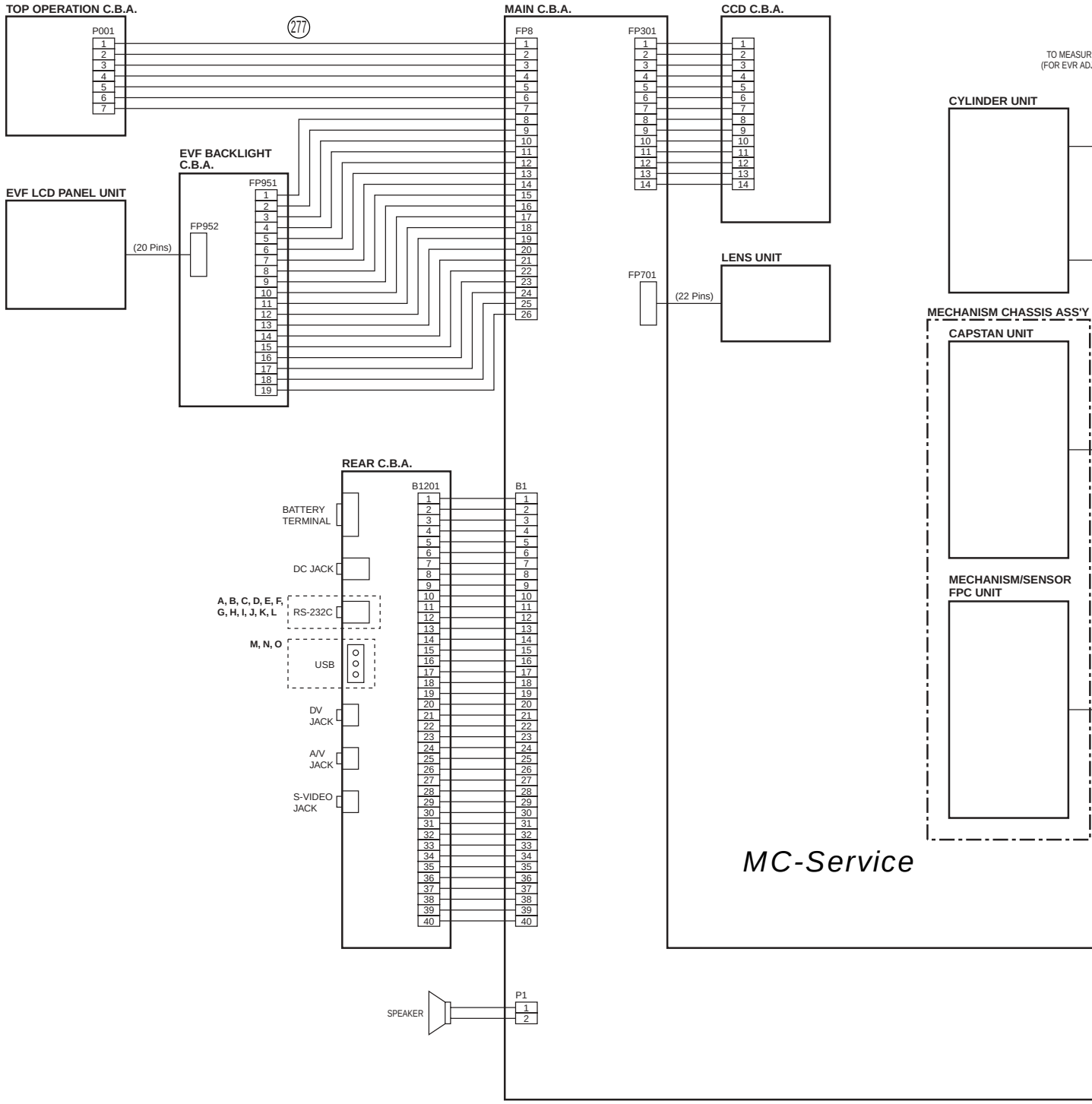
LSJB8188

LCD SCHEMATIC DIAGRAM

NV-DS29EG/NV-DS29EGM/NV-DS29B/NV-DS29EGE/NV-DS30EG/NV-DS30EGM/NV-DS30B/NV-DS30EGE/ NV-DS30EN/NV-DS30ENT/NV-DS30ENC/NV-DS30A/NV-DS50EN/NV-DS50ENT/NV-DS50A

8.6. INTERCONNECTION SCHEMATIC DIAGRAM

INTERCONNECTION SCHEMATIC DIAGRAM

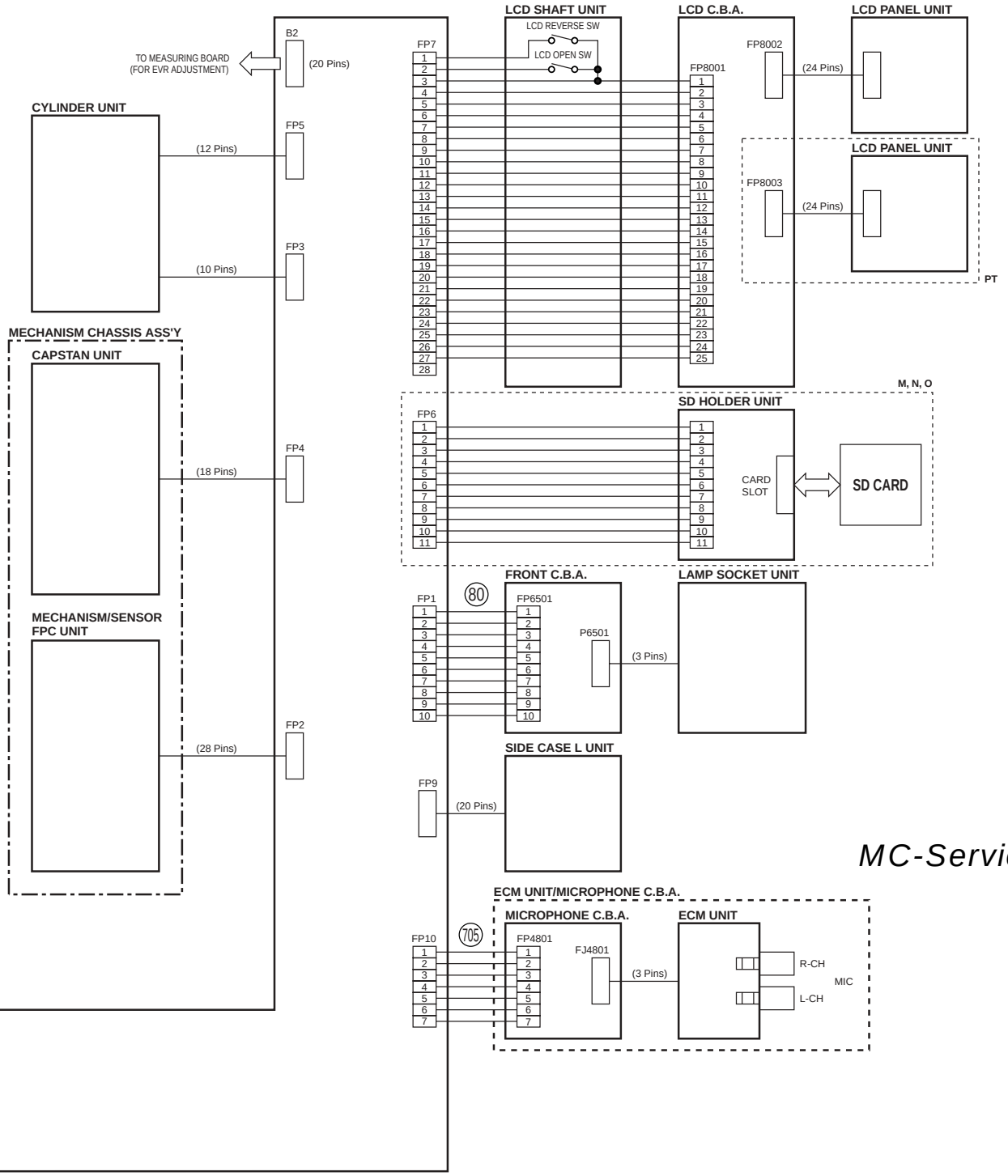


NOTE:
PARTS ENCLOSED IN DASHED LINES MARKED "PT" ARE NOT USED.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

COMPARISON CHART OF MODELS & MARKS

MODEL	MARK
NV-DS29EG	A
NV-DS20EGM	B
NV-DS29B	C
NV-DS29EGE	D
NV-DS30EG	E
NV-DS30EGM	F
NV-DS30B	G
NV-DS30EGE	H
NV-DS30EN	I
NV-DS30ENT	J
NV-DS30ENC	K
NV-DS30A	L
NV-DS50EN	M
NV-DS50ENT	N
NV-DS50A	O
Not Used	PT



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INTERCONNECTION SCHEMATIC DIAGRAM
NV-DS29EG/NV-DS29EGM/NV-DS29B/NV-DS29EGE/NV-DS30EG/NV-DS30EGM/NV-DS30B/NV-DS30EGE/ NV-DS30EN/NV-DS30ENT/NV-DS30ENC/NV-DS30A/NV-DS50EN/NV-DS50ENT/NV-DS50A

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

LCD C.B.A.

MODE / PIN NO.	CAMERA
IC8001	
1	7.5
2	7.3
3	2.4
4	2.4
5	2.4
6	2.5
7	2.4
8	2.4
9	2.4
10	11.9
11	0
12	---
13	---
14	---
15	---
16	---
17	---
18	---
19	6.0
20	0
21	1.4
22	1.4
23	1.2
24	0.3
25	0
26	0
27	1.0
28	1.0
29	3.0
30	0
31	0
32	0
33	0
34	0
35	0
36	3.0
37	0
38	0
39	2.8
40	1.0
41	0
42	3.0
43	3.0
44	0
45	2.8
46	0
47	2.5
48	2.5
Q8001	
E	0
C	0
B	2.8

MODE / PIN NO.	CAMERA
Q8002	
E	12.0
C	11.9
B	11.3
Q8003	
E	0
C	0
B	2.8
Q8004	
E	4.9
C	4.8
B	4.2
Q8005	
E	7.3
C	11.9
B	7.9
Q8006	
E	0
C	7.9
B	0.5
Q8007	
E	0
C	0
B	2.8
Q8008	
E	0
C	0
B	2.8
Q8009	
E	0
C	0
B	0.6
Q8010	
E	3.0
C	3.0
B	0
Q8011	
E	-14.6
C	-14.6
B	3.0
Q8012	
E1	0
C1	11.9
B1	0.6
E2	0.6
C2	-14.6
B2	0
Q8013	
E	3.0
C	3.0
B	0
Q8014	
E1	1.2
C1	0
B1	0.6

MODE / PIN NO.	CAMERA
E2	0
C2	11.9
B2	1.2
Q8015	
E	0
C	0
B	3.0
Q8104	
E	0
C	4.6
B	-0.4
Q8105	
E	0
C	4.6
B	-0.4
Q8106	
E	0
C	0
B	0.7
Q8107	
E	0
C	0
B	0

VOLTAGE CHART
NV-DS29EG/NV-DS29EGM/NV-DS29B/NV-DS29EGE/NV-DS30EG/NV-DS30EGM/NV-DS30B/NV-DS30EGE/
NV-DS30EN/NV-DS30ENT/NV-DS30ENC/NV-DS30A/NV-DS50EN/NV-DS50ENT/NV-DS50A

REAR SCHEMATIC DIAGRAM

NOTE: For placing a purchase order of the parts, be sure to use the part number listed in the parts list. Do not use the part number on this diagram.

NOTE: PARTS ENCLOSED IN DASHED LINES MARKED "PT" ARE NOT USED.

NOTE: FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

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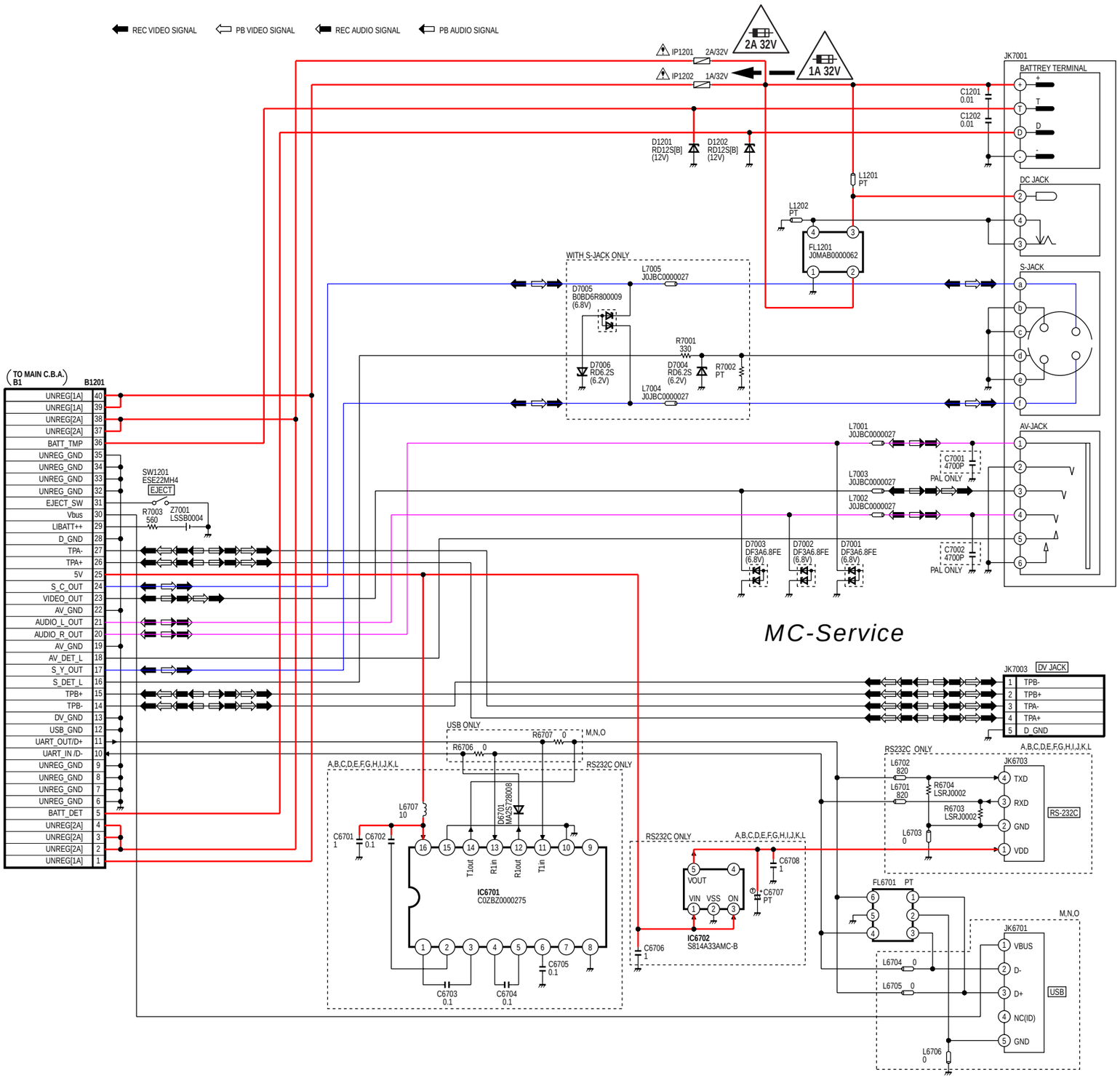
COMPARISON CHART OF MODELS & MARKS

MODEL	MARK
NV-DS29EG	A
NV-DS20EGM	B
NV-DS29B	C
NV-DS29EGE	D
NV-DS30EG	E
NV-DS30EGM	F
NV-DS30B	G
NV-DS30EGE	H
NV-DS30EN	I
NV-DS30ENT	J
NV-DS30ENC	K
NV-DS30A	L
NV-DS50EN	M
NV-DS50ENT	N
NV-DS50A	O
Not Used	PT



LSJB8183
REAR SCHEMATIC DIAGRAM
NV-DS29EG/NV-DS29EGM/NV-DS29B/NV-DS29EGE/NV-DS30EG/ NV-DS30EGM/NV-DS30B/NV-DS30EGE/NV-DS30EN/NV-DS30ENT/ NV-DS30ENC/NV-DS30A/NV-DS50EN/NV-DS50ENT/NV-DS50A

NOTE: For placing a purchase order of the parts, be sure to use the part number listed in the parts list. Do not use the part number on this diagram.

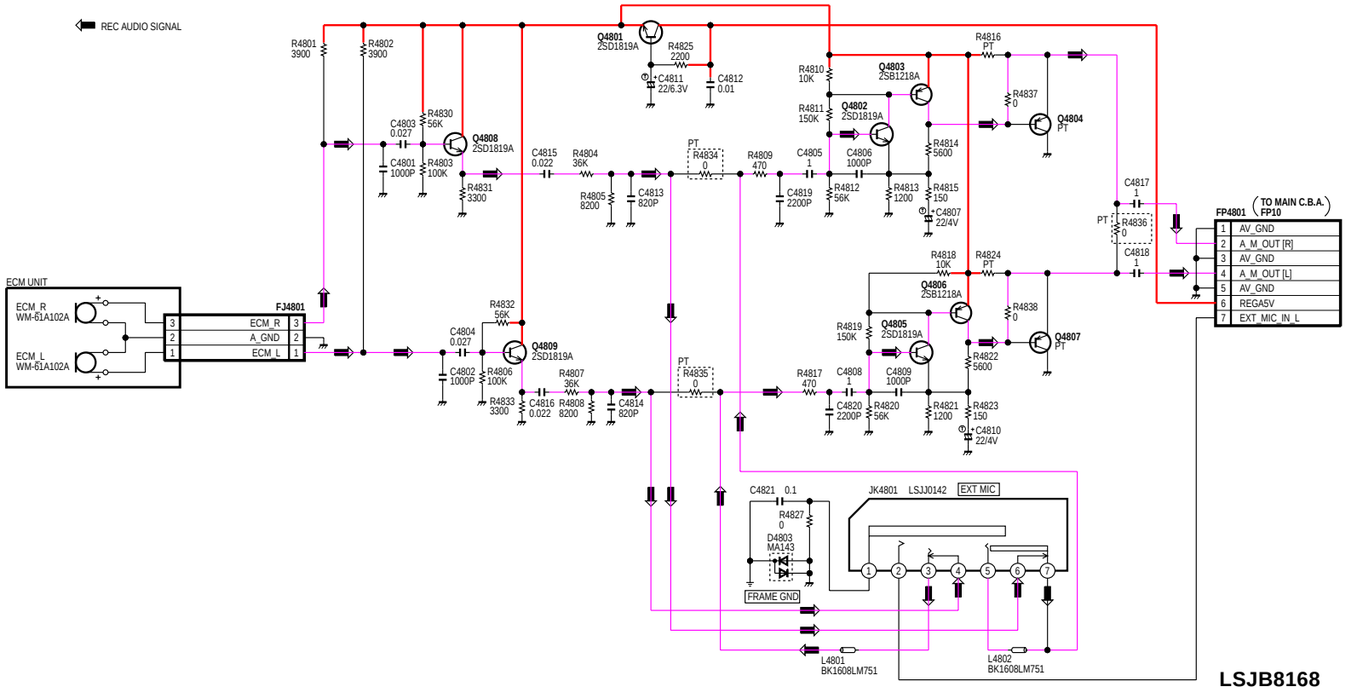
NOTE: PARTS ENCLOSED IN DASHED LINES MARKED "PT" ARE NOT USED.

NOTE: FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

MICROPHONE SCHEMATIC DIAGRAM

"FOR REFERENCE ONLY"

NOTE: MICROPHONE C.B.A. IS NOT SERVICEABLE AND IS SUPPLIED AS A UNIT ONLY FOR REPLACEMENT.

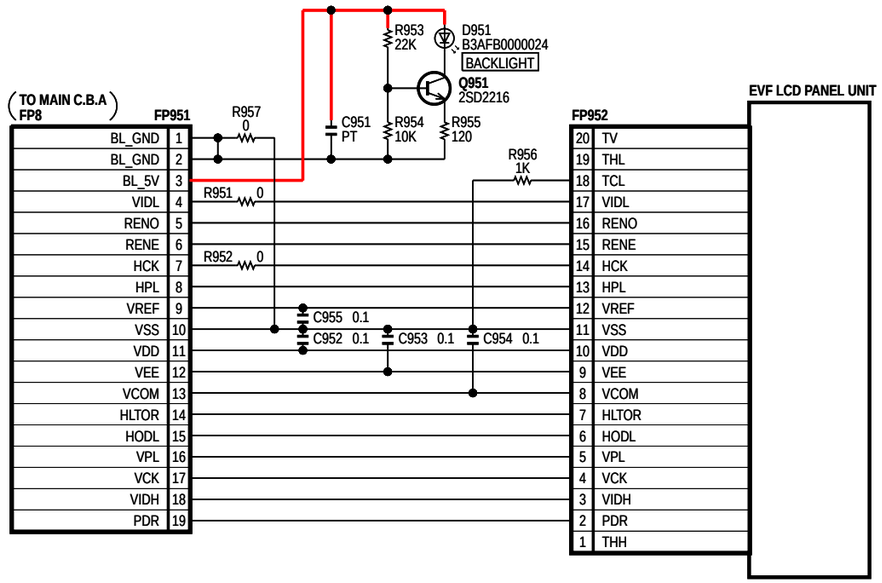


LSJB8168

EVF BACKLIGHT SCHEMATIC DIAGRAM

"FOR REFERENCE ONLY"

NOTE: EVF BACK LIGHT C.B.A. IS NOT SERVICEABLE AND IS SUPPLIED AS A UNIT ONLY FOR REPLACEMENT.

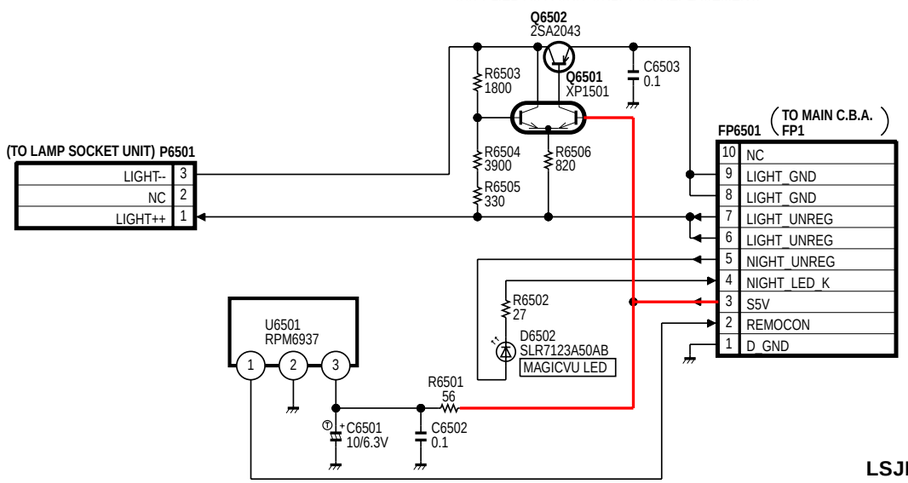


LSJB8169

FRONT SCHEMATIC DIAGRAM

"FOR REFERENCE ONLY"

NOTE: FRONT C.B.A. IS NOT SERVICEABLE AND IS SUPPLIED AS A UNIT ONLY FOR REPLACEMENT.



LSJB8193

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MICROPHONE/FRONT/EVF BACKLIGHT SCHEMATIC DIAGRAMS
NV-DS29EG/NV-DS29EGM/NV-DS29B/NV-DS29EGE/NV-DS30EG/NV-DS30EGM/NV-DS30B/NV-DS30EGE/ NV-DS30EN/NV-DS30ENT/NV-DS30ENC/NV-DS30A/NV-DS50EN/NV-DS50ENT/NV-DS50A